finish
FROM RAW METAL TO FINISHED PRODUCT

WASHROOM WALLS IN PITTSBURGH'S NEWEST SKYSCRAPER ARE PORCELAIN ENAMEL ON STEEL . . .

The men's washrooms (see upper picture) are paneled in "Ceramic" Ivory Porcelain Enamel.

Immediately above is shown one of the women's washrooms, which are paneled in Porcelain Enamel, "Ceramic" Greyed Rose.

Carrying out the theme of trim efficiency evident throughout this most modern office building, the washroom walls of 525 William Penn Place Building are paneled in durable, sanitary, attractive Porcelain Enamel. The enameling was done by Ingram-Richardson Mfg. Co. on U. S. S. Vitrenamel. The colors were furnished by Ceramic Color and Chemical Mfg. Co., to match the architect's specifications.

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The Patterson Foundry and Machine Company, (Canada) Limited

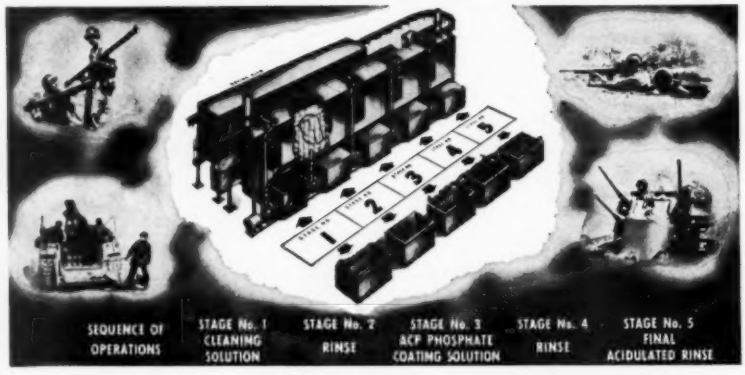
Toronto, Canada

MONTREAL

AMERICAN CHEMICAL PAINT COMPANY

AMBLER CHEMICALS ACP PROCESSES PENNA.

Technical Service Data Sheet
Subject: METAL PRESERVATION AND PAINT PROTECTION WITH ACP PHOSPHATE COATING CHEMICALS


SEQUENCE OF OPERATIONS
STAGE No. 1 CLEANING SOLUTION
STAGE No. 2 RINSE
STAGE No. 3 ACP PHOSPHATE COATING SOLUTION
STAGE No. 4 RINSE
STAGE No. 5 FINAL ACIDULATED RINSE

U.S. ARMY PHOTOGRAPHS COURTESY OF "ORDNANCE MAGAZINE"

Typical spray and dip phosphating equipment and some ordnance products that are now given a protective phosphate coating for extra durability under all kinds of severe exposure conditions. Both military and civilian applications of ACP phosphate coating chemicals are shown in the chart below.

SELECTION CHART OF ACP PROTECTIVE COATING CHEMICALS FOR STEEL, ZINC, AND ALUMINUM

METAL	ACP CHEMICAL	OBJECT OF COATING	TYPICAL METAL PRODUCTS TREATED	GOVERNMENT SPECIFICATIONS
STEEL	"GRANODINE" Zinc Phosphate Coating Chemical	Improved paint adhesion	Steel, iron, or zinc fabricated units or components, automobile bodies, refrigerators, washing machines, cabinets, etc.; projectiles, rockets, bombs, rifles, small arms, belt links, cartridge tanks, vehicular sheet metal, tank bolts and links, recoilless guns, etc.	MIL-S-5002 JAN-C-490, Grade 1 JAN-F-495 U.S.A. 57-0-2, Type II, Class C U.S.A. 51-70-1, Finish 22.02, Class C U.S.A. 50-60-1 16 E4 (Ships)
	"PERMADINE" Zinc Phosphate Coating Chemical	Rust and corrosion prevention	Nuts, bolts, screws, hardware items, tools, guns, cartridge clips, fire control instruments, metallic belt links, steel aircraft parts, certain steel projectiles and many other components.	MIL-C-16232 U.S.A. 57-0-2, Type II, Class B U.S.A. 51-70-1, Finish 22.02, Class B Navy Aeronautical M-364 U.S.A. 72-53 (See An-F-20)
	"THERMOIL-GRANODINE" Manganese-iron Phosphate Coating	Wear-resistance anti-galling, safe break-in of friction or rubbing parts. Rust proofing.	Friction surfaces such as pistons, piston rings, gears, cylinder liners, camshafts, tappets, crankshafts, rocker arms, etc. Small arms, weapon components. Hardware items, etc.	MIL-C-16232 U.S.A. 57-0-2, Type II, Class A U.S.A. 51-70-1, Finish 22.02 Class A Navy Aeronautical M-364 U.S.A. 72-53 (See AN-F-20)
	"GRANODRAW" Zinc-iron Phosphate Coating	Improved drawing, extrusion, and cold forming	Blanks and shells for cold forming, heavy stampings; tubs; tubing for forming or drawing; wire; rod; etc.	———
ALUMINUM	"ALODINE" Protective Coating	Improved paint adhesion and corrosion resistance	Aluminum products of similar design such as refrigerator parts, wall tile, signs, washing machine tubs, etc; aircraft and aircraft parts; bazookas (rocket launchers), helmets, belt buckles, clothes dryers, clothesline, rocket motors, etc., aluminum strip or sheet stock.	MIL-C-5541 (See also QPL-5541-1) MIL-S-5002 AN-F-20 U.S. Navord O.S. 675 16 E4 (Ships) AN-C-170 (See MIL-C-5541) U.S.A. 72-53 (See AN-F-20)
ZINC	"LITHOFORM" Zinc Phosphate Coating Chemical	Improved paint adhesion	Zinc alloy die castings; zinc or cadmium plated sheet or components; hot dip galvanized stock; galvanneal; signs; siding; roofing; galvanized truck bodies; etc.	QQ-P-416 NN-C-82 JAN-F-495 AN-F-20 U.S.N. Appendix 6 U.S.A. 72-53 (See AN-F-20)

CHEMICALS ACP PROCESSES

WRITE FOR DESCRIPTIVE FOLDERS ON THE ABOVE CHEMICALS AND FOR INFORMATION ON YOUR OWN METAL PROTECTION PROBLEMS

CHEMICALS ACP PROCESSES

MEETINGS

CENTRAL ENAMELERS MEETING

Central District Enamelers Club, Friday evening, February 15, Hotel Allerton, Cleveland, Ohio.

WORLD TRADE FAIR

International Trade Fair, Navy Pier, Chicago, March 22 through April 6.

NATIONAL PACKAGING EXPOSITION

American Management Association, national packaging exposition and conference, Atlantic City Auditorium, April 1-4.

AMERICAN CERAMIC SOCIETY

The American Ceramic Society, annual meeting, William Penn Hotel, Pittsburgh, April 27-May 1.

INT'L LIGHTING EXPOSITION

The 4th International Lighting Exposition and Conference, Cleveland Auditorium, Cleveland, Ohio, May 6-9.

GAS APPLIANCE MFRS. MEETING

Gas Apppliance Manufacturers Association, 17th annual meeting, The Broadmoor, Colorado Springs, Colorado, May 26-28.

ELECTROPLATERS ANNUAL MEETING AND FINISHING EXPOSITION

American Electroplaters Society, 39th annual convention, Conrad Hilton Hotel, and concurrent Industrial Finishing Exposition of 1952, International Amphitheatre, Chicago, June 16-20.

ASTM 50TH ANNIVERSARY

American Society for Testing Materials, fiftieth annual meeting, Statler and New Yorker Hotels, New York City, June 23-27.

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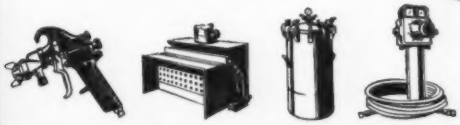

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Here's how Industrial filters simplify clarification problems—The flow rates of Industrial filters are based on the actual solution involved. You know the capacity you get. In solution clarification there is more than just the filter. With Industrial you get an adequate filter with slurry tank, motor-driven pump, valves and fittings in a complete package with one, undivided, experienced responsibility—with space requirements at a minimum.

The labor, down time, and the inconveniences of cleaning, replacing the filter media, and reassembling the filter for every new filter cycle—all are eliminated by the Industrial Air-Wash Cleaning Method available for all models. It is necessary to remove the cover only when new filter cloths are installed. With Industrial filters, a clarified plating solution is always assured.

The engineering, design, and construction of Industrial filters have proved out in long service and low maintenance costs. Industrial has the experience and is large enough to handle your filter requirements. Since 1927 filters and filtration systems have been an important part of our business.

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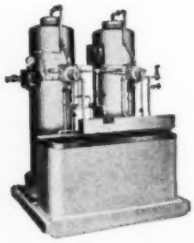
for Mill room assurance that the slip is always right



A Two-Bed INDUSTRIAL Water Demineralizer. Standard two-and four-bed units available with capacities of 200 to 1000 gph. Special units of any capacity engineered to requirements.

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From the Editor's mail..

keen interest in de-rusting

Gentlemen:

The article on Page 64 of January *finish* has been read with considerable interest, and particularly as a means of de-rusting without danger from acid embrittlement. . . .

Dr. Meyer has "rung the bell" in this accomplishment, and it is hoped he will be amply rewarded for his effort. His process should have a far-reaching effect on industry.

Dwight L. Millar
Evansville Sheet Metal Works
Evansville, Indiana

this is one of the many comment and inquiry-letters received in regard to the de-rusting process covered editorially in *finish* in an article entitled "New Alkaline De-Rusting Process Has Defense Possibilities for Use in the Field."

scrap drive case history

Gentlemen:

Of late, several inquiries have reached this office from industrial concerns all over the country concerning the news brief that appeared in December *finish* regarding our booklet on the recent Scrap Drive program conducted here at the Lyon plant.

We are both pleased and happy to furnish these brochures to any and all who ask for it. . . . It certainly has done a grand job in my own personal opinion in promoting a good thing.

E. J. Michaels
Advertising & Sales Promotion
Lyon Metal Products, Inc.
Aurora, Illinois

by this time we hope that every company receiving *finish* has some plan developed for assisting in the scrap drive.

investigating new finishing processes

Gentlemen:

I wish to thank you for sending us the December issue of *finish*. Our department finds it very useful as we are in the process of installing pre-

to Page 64 →

finish SUGGESTION BOX

Vinylite plastic bakes at 350° F.

A NEW formulation of Vinylite dispersion resins has been developed, making possible a plastic material that opens up many new fields of application, combining the advantages of production and equipment economies.

The new material can be molded, calendered, embossed, stamped and extruded; it can be used for coating cloth, paper and dip-coating of wire objects; it is suggested for floor tile, tubing, intricate electrical fittings, toys, novelties, etc.

Relatively stiff, the plastigels can be softened at room temperature by stirring or kneading, and formed by hand pressure, molds or dies into complicated shapes and fine details. After forming, plastigels gradually stiffen again, becoming self-supporting. They bake to a hard, finished state in about ten to fifteen minutes at 350° F.

One of the most important advantages claimed for Vinylite resin plastigels is that they can be handled with lighter weight equipment than is used in conventional molding and extrusion of similar plastic materials. Because high-pressure and heavy-duty equipment is not required, available equipment can be adapted for processing. Likwise, because of the relatively low temperature of 350° F. required for fusing, ordinary ovens may be used.

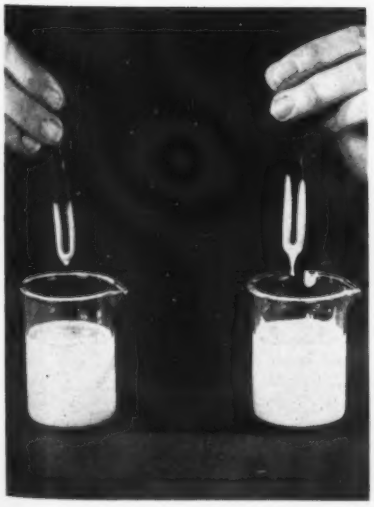
The new formulation is based on Vinylite dispersion resins, plasticizer and an additive of Bentone-34, plus other modifiers and colorants. These components when properly mixed provide the putty-like material. The basic resins and the technical information required to formulate plastigels are now available.

Write to *finish* for technical information on the new Vinylite plastigels.

Left: An ordinary cookie press is sufficient for a simple extrusion process.

Left below: Dip-coating operations are easy with the more fluid-type plastigel formulations. Build-up with the new material is shown at the right, while conventional resin dispersion is shown at the left.

Below: Fusion can be accomplished by baking in an ordinary oven from ten to fifteen minutes at about 350° F.



COPPER SUPPLY PICTURE TO IMPROVE DURING THE LATTER HALF OF 1952

The U. S. copper supply picture will begin to improve during the latter half of 1952, according to Cornelius F. Kelley, chairman, Anaconda Copper Mining Company.

In his statement on the copper outlook, Kelley said:

"It is apparent that the copper supply will begin to improve materially during the latter half of 1952. Currently, U.S. mine production, including secondary treated by primary refineries, is averaging approximately 90,000 tons per month. With an estimated 35,000 tons per month available from foreign sources, the total present supply is in the neighborhood of 125,000 tons per month. This could be augmented somewhat if scrap intake were up to normal tonnage.

"The first major increase in production will come from Anaconda, via the Greater Butte Project and the new sulphide plant at Chuquicamata, Chile, both of which will begin operations in the spring of 1952."

USA
1,292
POUNDS OF STEEL PER PERSON PRODUCED IN 1950 UNDER U.S. COMPETITIVE SYSTEM BY OUR 253 STEEL COMPANIES
REST OF WORLD
97
POUNDS OF STEEL PER PERSON

FORTY YEARS AGO the automobile was a rich man's toy. TV and radio were unheard of. Refrigeration? You hung a card in the front window to signal the ice man.

Today we drive 40 million cars, listen to 90 million radios, keep food in 33 million refrigerators.

Yet millions in the rest of the world are still groping in the primitive darkness of 40 years ago.

Why have we moved ahead? Competition is a chief reason. Only competition in business has made luxuries commonplace in your home today. Competition, for example, in the production and sale of steel and things made out of steel.

Steel makes progress possible—in war or peace . . . in the manufacture of everything from tableware to tanks, razor blades to skyscrapers, baby carriages to "Big Mo".

How well does this competition of ours work in the steel business?

. . . The U.S.A. shows an 83.4% gain in steel output between 1939 and 1950. The rest of the world shows an 0.8% loss.

. . . In 1939, the U.S.A. under "competition" made ⅓ of all the world's steel. Today we produce half—all with only 6% of the people in the world.

. . . Steel workers under "competition" gained in jobs, too. There were 449 thousand jobs in 1939. Today—637 thousand.

The steel industry is just one example of how a free competitive system works. Ours is the security millions of people in the world dream of when they embrace such dead-ends as "planned economies".

Look around and see what happens when people hand their jobs and factories over to the government. Or have them taken by law. Or by force. Name it what you will—"communism", "nationalization", "socialism","regimentation"—it is a one-way street, and no turning back. By then people no longer own government. Government owns the people.

• • •

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THE COMPETITIVE SYSTEM DELIVERS THE MOST TO THE GREATEST NUMBER OF PEOPLE

PHOTOS COURTESY NORTHROP AIRCRAFT, INC.

ADS OUT

Plastic tooling aids defense work

an answer to many tooling problems is presented in this exclusive article — it has special significance for companies interested in aircraft contracts

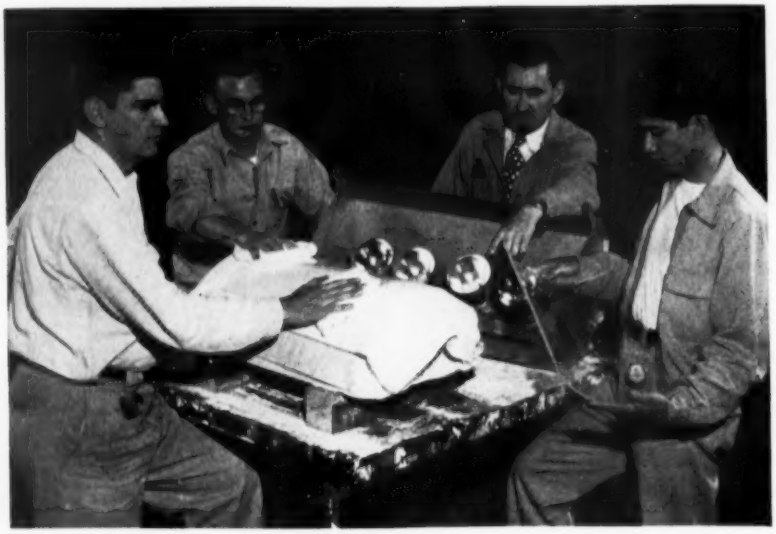
by Gilbert C. Close • WESTERN EDITOR

DEFENSE PRODUCTION FEATURE

For many years the various plastic materials were the "whipping boys" of the engineering fraternity. Those "in the know", who had had some experience with the plastics, liked to regard them as a universal substitute for all structural materials, without regard to shortcomings and inadequacies. On the other side of the fence were those who wanted nothing to do with the plastics, would not consider their use, and regarded them as materials suited only for the production of dime store trinkets.

Happily for industry, these diverse opinions have now been modified. Today, the plastics are aligned with other production materials. Their characteristics are fairly well known, and many worthwhile applications have been worked out. Some of these applications have a strong bearing on the current defense production program. One application in particular — an application that promises to break many so-called bottlenecks — is the use of plastics to replace metal in tool development. Some of the largest aircraft companies in the nation, including Northrop, North American and Douglas, have gone "all out" in plastic tool development. At these companies, a huge percentage of the shop tools now produced are made from a thermosetting poly-resin tool plastic. These tools have proved to be better, more accurate, quicker to make, and

Above: Portable infra-red lamp bank used for curing tools too large and heavy to place in oven. Lamp bank is handled by overhead crane, then lowered into proximity with tool to be cured.



Tool plastic form block and infra-red heating unit used for hot-forming acrylic windshield sections.

more economical to produce than comparable metal tools. They are not peculiar to the aircraft industry, but are used in large quantities in any industry where metal forming, aligning, drilling, trimming, etc., must be accomplished.

Many applications in successful use

At Northrop Aircraft, Inc., where plastic tooling is now a major operation, the following plastic tools are now in constant and successful use . . . . stretch press blocks (both for sheet and extrusions), draw dies, router fixtures, trim and drill fixtures, saw fixtures, drill jigs, welding jigs, glass cloth molds, checking fixtures, jig masters, sub-assembly jigs, and milling fixtures. Lesser tools for special purposes are turned out by the hundreds. Complete facilities for working with the plastics have been installed, and constant investigations are in progress to develop new and worthwhile applications.

It is evident at a glance that the above tools are used in all metal-working shops. This is analogous to saying that each and every shop can, to some degree, enjoy the same advantages and economies that are now being realized by the major aircraft companies. A changeover to plastic tool construction does not call for major shop alterations, nor is much supplementary equipment required. Aside from the raw materials, a low-temperature curing oven is all that is needed. This may be supplemented by mechanical mixers, infra-red lamp banks for local heating, and other minor conveniences as the plastic tooling program progresses.

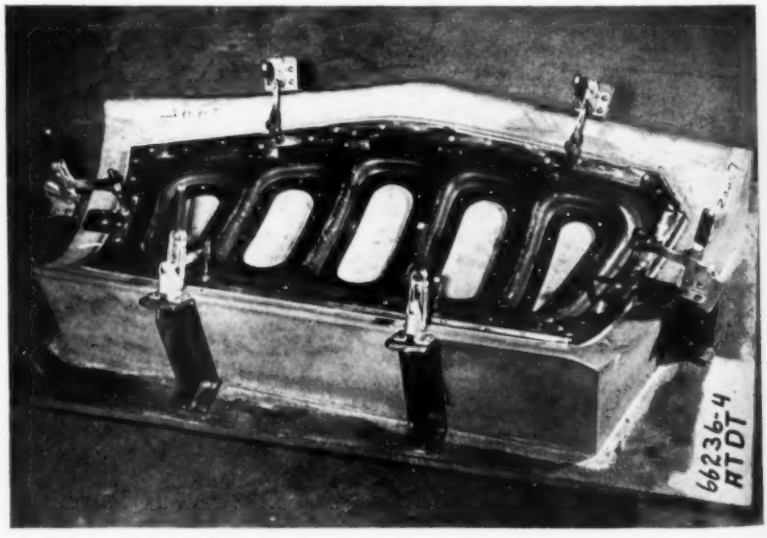
To begin with, let us survey the advantages of using plastics as a tooling material. Of great importance right now, the raw materials are non-critical. The necessary resins, catalyzers and stabilizers are available in any desired quantities and delivery is prompt. Points of tool plastic supply are scattered throughout the nation, and most tool plastic vendors will willingly supply technical aid and advice to anyone desiring to use their product.

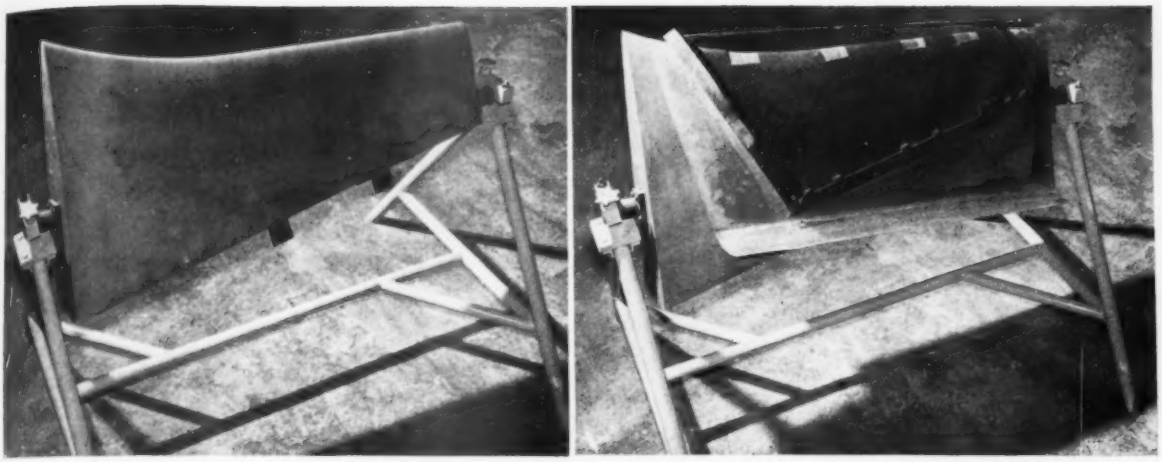
Saving 47.7 man hours per tool

From a more general perspective, the main advantage of plastics over metal for tool production is dimensional stability. Dies, stretch press blocks, tool fixtures, molds, etc., may be cast to size and given a cast-in finish that fits them for immediate use. Machining, polishing and grinding of the finished casting is not necessary as shrinkage during setting and curing is negligible. With metal tools, many hours of such work may be required to bring them to blue-block dimensions. In one test at Northrop, seven typical tools that had been made from metal were made from plastic. Time saving (accruing mostly from the elimination of tool finishing) averaged 47.7 man hours per tool. The "cast in" dimensions were well within tolerance requirements. When these tools were placed in production use, they were found to function better (less galling) than the previous metal tools, and maintain greater accuracy during shop temperature changes. Total cost of the seven tools, including labor, was substantially less than that of the metal tools they replaced.

Tool development with the plastics

Typical combination trim and drill fixture using plastic material for the base and nesting surface. A tool like this provides ideal facilities for holding the part and apply template in positive relations to each other during these operations.





Left: Router fixture for the trimming operation on the vertical stabilizer of an airplane. A tool like this requires a structural steel core for added strength. In this case, the steel core is entirely enclosed by the plastic, so no bonding screws or lugs are necessary. Right: Rough part and router guide apply template mounted on tool shown in left photo. It is now ready for the trim operation.

is not much different than tool development with the metals. The procedures parallel each other in scope, though the techniques and processes differ to some extent. The procedures and processes employed at Northrop are an excellent example of efficient plastic tool development based on years of practical experience and excellent results. The same procedures and processes will apply in any industry.

In terms of broad classification, impact tools cannot be produced with the plastics. All tool plastics available today are prone to be somewhat brittle, and impact loading such as encountered in a drop hammer die will cause them to chip and shatter. On the other hand the compressive strength of the tool plastics is very great, and when subjected to steady cumulative load pressures, they will often stand up where metal would gall or suffer cold working and some deformation. Thus impact tools are eliminated immediately.

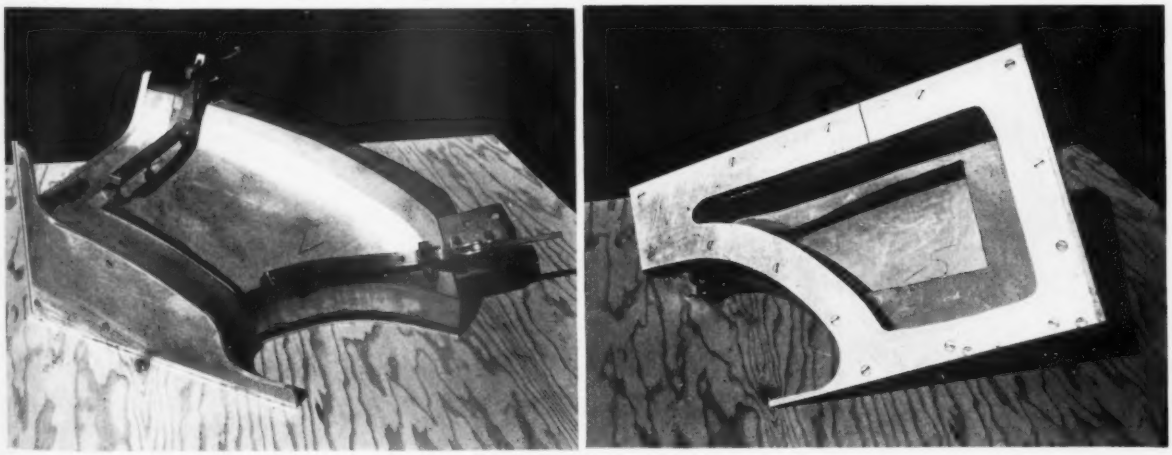
Apply five questions when considering plastic tooling

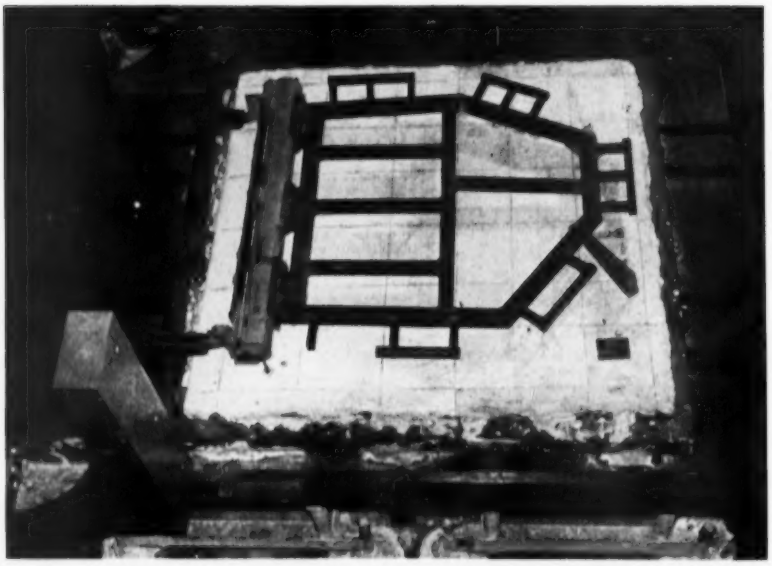
In considering the use of plastics for pressure and dimensional tools, such as stretch press blocks and shop tool fixtures, Northrop tooling engineers apply the following five questions: (1) Will the tool require surfaces which are complex and difficult to duplicate? Can the tool be readily made from mockups, masters, sample parts or related tools? (2) Will the plastic material withstand the loads which will be imposed upon it? (3) Will the use of plastic effect a saving over the fabrication of a conventional built-up tool? (4) Can the plastic be used in conjunction with the plaster method of tool fabrication? (5) Will the plastic produce a better end product?

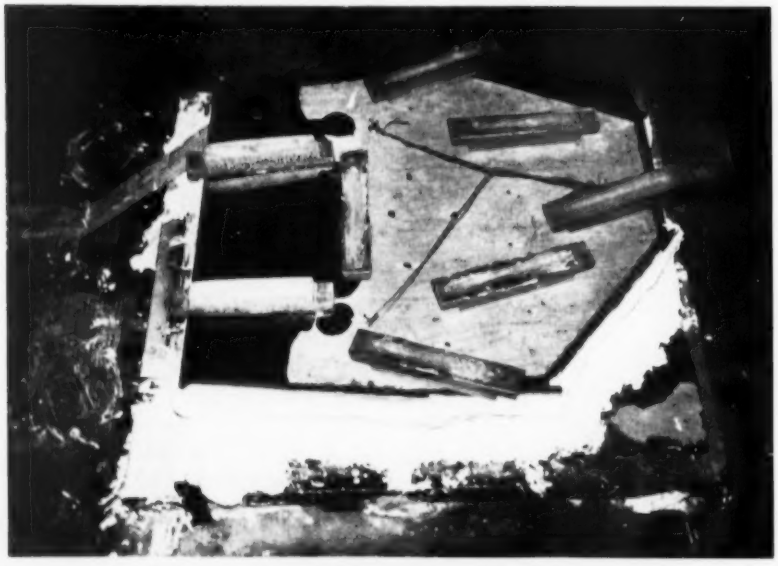
If the answer is "yes" to these five questions, plastic is the indicated material. The same questions apply to tools already in production, or contemplated tools for future production.

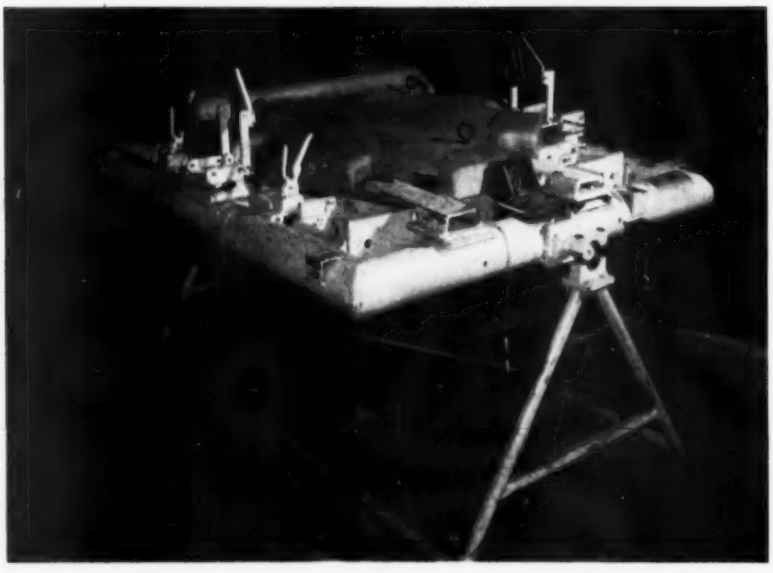
The sequence of operations in producing a plastic tool may be summarized as follows: (1) pattern preparation and coring, (2) mixing the plastic, (3) pouring, (4) curing, and

Left: Typical tool plastic saw fixture with three trimming edges. Metal plates have been added to serve as guides against the saw collar. Right: Reverse side of saw fixture shown in left photo to illustrate cored section of the tool plastic. As very little strength is required of this tool, coring saves material and reduces cost.









(5) machining if necessary. The efficiency with which these operations are carried out determines the overall success of the plastic tooling program. However, none of them are more critical or difficult than the operations encountered in producing a cast metal tool.

Pattern production

Any of the standard pattern materials may be used to make patterns for the plastic castings. Wood, however, should be avoided when possible due to its tendency to shrink and warp at the elevated curing temperatures. At Northrop, it has been found that ordinary plaster is the best pattern material for most tools.

Standard shop practices are used in making a plaster pattern. It is built to exact scale, using templates, splashes, etc., as required. The reference tooling available will determine the exact procedure. Wall thickness of the plaster pattern should not be less than one inch, nor more than one and one-half inches. Very thin walls will not provide sufficient strength, while overly thick walls increase the dry-out time and delay tool production. In all cases, the plaster should be re-inforced with fiber, and supported, when possible, by a metal

to Page 62 →

Top: First stage in fabrication of a jig master for an airplane main landing gear door. The surface of this plastic tool will duplicate the airplane's wing contour. The steel tubing shown is for internal support and added strength.

Center: The flash has been built around the core structure shown in top photo, and the tool plastic has been poured. Note plywood dyke boards held in place by plaster and hemp.

Left: The complete plastic jig master mounted in position on assembly jig. In this set-up, contour ribs of the assembly jig are located and coordinated by the contour of the jig master, while the throw-over assembly jig drill bushing arms are indexed from the bushings in the jig master. This jig master is a typical illustration of the use of tool plastic material in accurately duplicating contour parts.

ADS OUT

Seven barrels bright hone or deburr 110 different parts

components include stampings, castings, forgings and screw machine products made from steel, brass, stainless, zinc, and aluminum alloy — one man operates entire set-up

by Floyd Hubbard • METHODS ENGINEER, THE DE VILBISS COMPANY, TOLEDO, OHIO

SUBSTANTIAL cost savings have been effected in surface preparation and deburring operations at The DeVilbiss Company, Toledo, through the application of equipment installed less than two years ago. This equipment, shown in the accompanying photographs, includes a set of seven wet tumbling barrels and facilities for storing, handling, and separating abrasive chips in addition to washing, dipping, and drying units.

Since this new department was installed, some 14 months prior to the collection of particulars for this article, 110 different parts have been processed to advantage in production lots. In practically all cases, there is a substantial cost saving over prior methods. Greatest savings are in avoiding such hand labor as is involved in picking up and processing one piece at a time, as in wheel buffing, for example.

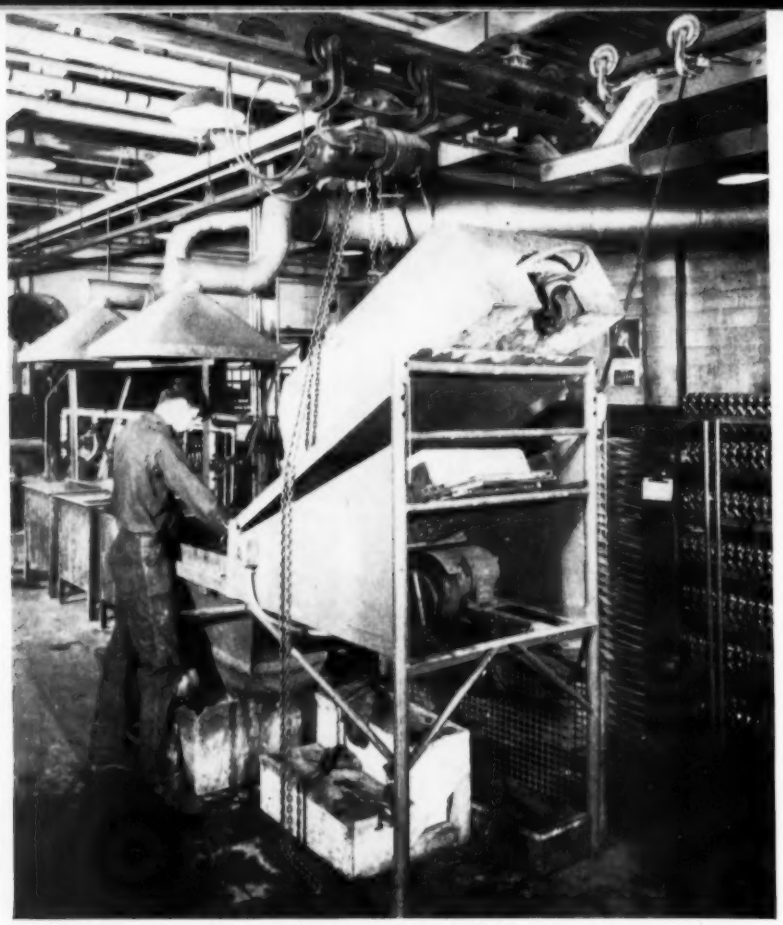
Small parts processed in bulk lots

With the present process, parts are always handled in bulk lots. They are always de-greased before being placed in a tumbling media that includes, as a rule, abrasive chips, a prepared compound, and water. These are always used in predetermined proportions established by test, in rubber-lined barrel compartments. A cover is locked in place and the barrel is then rotated at a selected speed for a given time. Then the barrel is stopped, the compartment cover is removed, compound is flushed out with water, and the remaining charge is dumped onto a screen supported on a chip pan below the barrel.

In general, chips and parts are separated by this screen on which the parts remain while chips pass through and are collected for reuse. In other cases, the entire charge is transferred to a shaker screen. Sometimes separation is facilitated by use of a hand magnet that picks up steel parts. The method chosen is that which happens to be most convenient for the particular parts processed. Parts that may be damaged if they stand while wet often are placed in a centrifuge basket to remove water and then generally are dried or are given a dip treatment, such as one to avoid oxidation, before further processing or storage.

Because the parts processed vary greatly in size and in shape, as well

Equipment for wet tumbling employed in the DeVilbiss plant. Operation requires only one man, but both the volume of parts processed and the savings resulting are large.



Shaker screen, shown in foreground, is used for separating parts from chips and for regrading chips. Dipping, drying and chip storage equipment are shown in the background.

as in the material from which they are made, are not always in the same initial condition, and have to fulfill many different service specifications, the particular processing has to be varied accordingly. Often it requires one or more test runs to determine the combination that gives desired results. Once this is determined and recorded, however, it remains the same for each batch of the same part.

Most of the barrels used have two compartments and both compartments may contain either the same or different charges. One twin 27x32-in., three twin 22x35 in., two single 22x35-in. barrels are used, plus one midget barrel. In general, large parts are processed in large barrels and small parts in small barrels but the size of batches to be processed and the availability of particular barrels at a given time sometimes make it expedient to process large batches of fairly small parts in large barrels.

Deburring and "bright honing"

Two general types of work are done: deburring and surface preparation, but both can be done at the same time in some cases. In general, however, deburring is done with grinding chips and a particular compound while surface treatment, often called "bright honing", is done with softer chips and a different compound. In the latter treatment, fine burrs may also be removed but if burrs are heavy it is usual to employ grinding chips. This can be followed by "bright honing" if a smooth and bright surface is needed.

Both processes, of course, produce scouring action that tends to make surfaces smooth but grinding chips work faster and are more severe in their cutting action than softer honing chips. In some cases, grinding chips remove or decrease tool marks, especially on convex surfaces, in addition to removing burrs. If a bright finish is needed, however, bright honing chips or compounds or both are employed.

Chips come in several sizes. The one selected is usually the largest available that will reach all surfaces to be deburred or honed and that will not stick in any holes or recesses in work pieces. Large chips cut faster than small ones but small ones often are needed to reach into radii or corners not reached by larger sizes. Some wear and breakage on chips occur, hence the chips are usually screened after two or three runs to separate out fine particles and regrade as to size.

Stampings, castings, forgings and screw machine parts

An accompanying photograph illustrates the range in size and type of parts treated. Included are stampings, castings, forgings, and screw machine products most of which are machined or have undergone all processing needed up to preparation for plating or other finishing. In the case of thin parts or others that could be damaged by bending, the load and other conditions have to be so chosen that injury does not occur. It is commonplace, however, to treat precision parts without any significant change in dimensions save for such rounding of edges or corners as the abrasives produce. Parts with either internal or external threads are often processed without affecting the threads save for removing burrs from crests.

Among parts finished is a yoke clamp (A). This is a stamping that has helical cam surfaces that must be deburred. In addition, the part must be bright honed. For deburring, 550 to 600 parts, 700 lb. of limestone chips (Nos. 4 and 5 mixed) and three and one-half pounds of No. 11 compound are placed in a 22x35-in. barrel compartment, covered with water, and the barrel is run for 24 hours at 15 rpm. Deburring could be done much faster with grinding chips but some surface scratching would occur.

At the end of this run, the compartment is flushed out to remove the compound, after which three and one-half pounds of No. 203 compound is added and the load is then run for 3 hours to bright hone. Parts are then separated and washed and a hard wheel is then used to flatten the helix surface, after which parts are ready for cadmium plating.

For the stamping (B), which has a heavier burr, deburring is done in 15 hours using 700 lb. of No. 3 B granite grinding chips to 1,500 parts and three and one-half pounds of No. 11 compound. A screw is then brazed to each part after which a similar batch of parts is mixed with 700 lb. of No. 5 limestone chips and three and one-half pounds of No. 100 compound, plus water to cover, and a 10-hour run is made. After this, parts are separated, washed and are ready for cadmium plating.

Among small parts deburred in the midget barrel are short brass tubes in several diameters and various lengths (C), sawed from long lengths. 20,000 to 30,000 such parts, 25 lbs. of No. 4 limestone chips and one-quarter pound of No. 100 compound plus water are used. Such loads are run 4 to 5 hours at 25 rpm., depending upon the burrs existing. To deburr such parts individually by hand would be a slow, tiring, and uncertain process likely to yield varying results, whereas, in barrel work, the results are uniform and labor is only that for loading and unloading the barrel, washing, and separating from chips.

Triggers for DeVilbiss spray guns are among small zinc alloy die castings processed. A load of 1000 parts, 700 lb. of No. 4B and 5A limestone chips, mixed, and three and one-half pounds of No. 100 compound, plus water are used in a 22x35-in. barrel turning at 15 rpm. After a 12-hour run, to remove burrs and fine flash, the barrel compartment is flushed out and three and one-half pounds of No. 203 compound are added, without changing chips.

This load is run 3 hours to bright hone the parts. Although the brightness is not equal to that for wheel polishing and buffing, it is adequate for the Zialite plating (which is not a bright plate but "throws" well into recesses) that follows, and the saving is $1.75 per hundred pieces.

Identical processing, up to plating, is done also on small brass forgings of similar size and shape. These parts, however, receive a bright nickel plate. Savings in these cases (over prior hand polishing and buffing) run about $1.25 per hundred pieces, which is substantial, especialy as some 30,000 of these parts per year are needed.

Among the stainless steel parts deburred are valve discs, flat washer-like pieces (D) about 0.100 in. thick. Shearing in the blanking die leaves burrs and scratches on edges. Both must be removed, especially as scratches may result in service breakage. About 4000 pieces, 700 lb. of No. 3B limestone chips and three and one-half pounds of No. 11 compound plus water constitute a load in a 27x32-in. barrel compartment. A run of 10 hours at 14 rpm. produces desired results, including increased service life.

Similar processing is done on a formed stainless steel spring (E), this being made from 0.100-in. stock. In this case, however, a mixture of No. 3B and No. 6 granite chips are used along with No. 11 compound and tumbling continues for 24 hours. The large chips presumably do most of the deburring and doubtless aid in pushing the small chips into radii where it is essential that burrs be removed.

Continuous operation without attention

Long runs such as these continue through the night with barrels needing no attention, hence the cost is only slightly greater than for shorter runs. Short runs are made during day shifts when the single attendant, who handles the entire group of operations, is on the job.

For removal of burrs and light flash remaining from the trim die on the 2½-in. diameter aluminum die casting, (F) batches of 500 parts are tumbled for four hours in 700 lb. of No. 5A limestone chips and three and one-half pounds of No. 100 compound. This casting is previously hardened by coining and this avoids marking that might result if the surfaces were softer.

Among brass forgings processed is the ring, (G), having projecting ears. Formerly, the outer diameter was wheel polished. Now, lots of 1000 pieces are bright honed for 12 hours in 700 lb. of Nos. 4B and 5A limestone chips, mixed, and four pounds of No. 100 compound plus water to cover. A saving of about $500.00 a year on total approximating 50,000 pieces is realized.

Small perfume atomizers made by DeVilbiss require a pair of screw machine products shown at left in the group marked (H). Each pair later is assembled as shown at right in this group. These brass parts have five threads and small holes from which burrs must be removed. Tumbling is done in a 22x35-in. barrel containing 12,000 of each part, 700

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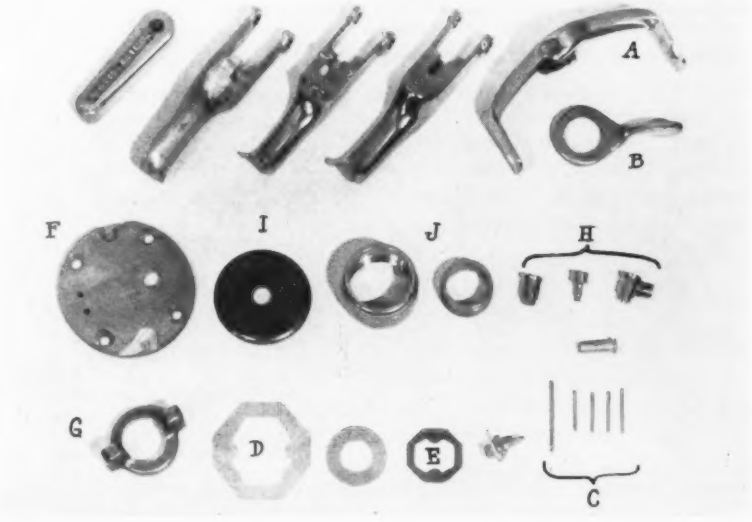
Examples of typical parts deburred or bright honed by wet tumbling, equipment in the DeVilbiss plant. Parts processed include stampings, castings, forgings and screw machine products.



The use of nepheline syenite in porcelain enamels

by John E. Cox and Ralph L. Cook* • UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS

NEPHELINE syenite was used in frits of conventional ground coat enamels and for low temperature enamels, and compositions were studied to develop frits for the intermediate temperature range.

Conventional hard and soft ground coat enamels

Conventional hard and soft ground coat frits were chosen as a basis for a preliminary study of the use of nepheline syenite. The compositions of the frits are given in Table I. Frit N-1 is a typical ground coat frit which matured in the range of 1550-1600° F.; in frit N-2, nepheline syenite was substituted for feldspar on a direct percentage basis; in frit N-3, nepheline syenite was used to supply all the alumina, but the oxide composition was kept the same as the base frit N-1. Frits N-4 and N-5 were based on typical soft member frits in which nepheline syenite replaced the feldspar.

Low temperature ground coats

A high barium carbonate, low silica, representative type of low temperature ground coat enamel was chosen as a basis for this study, and nepheline syenite was substituted for feldspar in the frit.

Frit variations

A study of frit compositions was conducted to determine the effects of various combinations of nepheline syenite, flint, and fluxes, and to develop ground coat enamels maturing in the intermediate temperature ranges. Several hard and soft member frits were prepared as given in Table I. In the hard frits, H-1 through H-6, the nepheline syenite, flint, and fluorspar contents were varied; in the soft frits, S-1 through S-10, various flux materials were added at the expense of nepheline syenite, and flint.

Laboratory procedure

Pottery grade nepheline syenite was used throughout the frit study in the above compositions, but in addition, some representative frits were prepared in which "B" grade (higher iron content) nepheline syenite was used. Smelting, milling, and application procedure was in accordance with standard methods. Enamels of each of the above frits, and some two-frit enamels, were prepared and fired through an appropriate firing range. They were inspected visually, and their adherence was tested by the drop-weight method. The fluidity of the frits was compared by means of flow button tests.

Nepheline syenite as a mill constituent

The various grades of nepheline syenite used in this study are given in Table II. Mill additions of 10, 15, and 20% of pottery grade nepheline syenite, fine grind nepheline syenite, micronized nepheline syenite, and a soda feldspar were made to representative ground coat enamels. These enamels were fired, inspected, and tested by the drop-weight method. The solubility of the mill additions in the enamel glass was studied by means of X-ray examinations of the fired specimens. The fusibility of the different grades of nepheline syenite was further compared by

TABLE II

Particle Size Distribution of Nepheline Syenite

Sieve No.	Pottery Grade	Cumulative Per Cent Fine Grind	Micronized
on 70	0.02	0.00	0.00
100	0.05	0.02	0.00
140	0.27	0.08	0.00
200	1.43	0.43	0.00
270	3.76	1.62	0.00
325	5.79	3.23	0.00
thru 325	94.21	96.77	100.00
Particle size in Microns		Per Cent Undersized	
32.2		84.0	98.0
17.7		60.4	91.0
10.0		40.9	75.5
7.0		30.7	58.4
4.1		20.6	31.6
2.6		14.7	19.6

**Submitted in partial fulfillment of the requirements for the Master of Science degree in the Graduate College of the University of Illinois.*

TABLE I

Composition of Frits

Raw Materials	Preliminary					Hard Members						Soft Members								
	N-1	N-2	N-3	N-4	N-5	H-1	H-2	H-3	H-4	H-5	H-6	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10
Nephelene Syenite	—	30.00	24.61	20.55	20.50	35.00	30.00	25.00	20.00	28.50	30.00	24.00	21.00	21.00	24.00	21.00	21.00	19.00	19.00	20.00	21.00
Feldspar	30.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Borax	35.00	35.00	34.90	34.95	34.90	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	40.00	40.00	35.00	35.00
Quartz	15.00	15.00	19.45	18.65	18.80	10.00	15.00	20.00	25.00	15.00	13.50	15.00	15.00	12.00	15.00	15.00	12.00	12.00	12.00	10.00	10.00
Soda Ash	6.00	6.00	7.20	5.40	5.60	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	3.00	6.00
Soda Niter	4.00	4.00	3.89	4.05	3.83	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Fluorspar	7.50	7.50	7.45	4.97	4.98	7.50	7.50	7.50	7.50	9.00	9.00	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Barium Carbonate	—	—	—	—	8.96	—	—	—	—	—	—	6.00	9.00	12.00	—	—	—	9.00	9.00	9.00	9.00
Sodium Silico-fluoride	—	—	—	8.98	—	—	—	—	—	—	—	—	—	—	6.00	9.00	12.00	—	—	6.00	—
Zinc Oxide	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.00
Lithium Carbonate	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.00	—	—
Cobalt Oxide	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Nickel Oxide	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Manganese Dioxide	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Button Flow Results L x W in inches	1.18	1.49	1.46	2.07	1.73	0.49	0.43	0.36	0.30	0.44	0.41	0.58	0.75	1.23	0.61	0.64	0.59	1.37	2.00	1.56	1.32

means of flow button tests of mixtures of frit plus various amounts of nepheline syenite additions.

Summary of results and conclusions

Nepheline syenite was found to be very satisfactory as a frit constituent in ground coat enamels. When it was substituted for feldspar, on a chemical or weight basis, the resulting frit was more fusible and produced an enamel with a slightly greater firing range. The direct additions of nepheline syenite in place of feldspar increased the Na_2O/K_2O ratio in the frit, and also increased the total alkali content and decreased the silica content. The substitution of nepheline syenite for feldspar, on a chemical basis, increased the fusibility by producing a higher Na_2O/K_2O ratio in the frit, although the total alkali content was constant.

Ground coat enamels, containing nepheline syenite, were developed for firing temperatures from 1300-1600°F. Throughout this temperature range, smooth, glossy, surfaces were obtained, and very good adherence was developed when nickel-flashed steel was used.

The "B" grade nepheline syenite was also found to be satisfactory as a ground coat frit constituent. It was used in both regular and low temperature frits, and no trouble was encountered from the higher iron content.

Nepheline syenite can be used as a mill constituent in amounts up to 20%. In the conventional enamels, the nepheline syenite showed greater fusibility and was taken into solution more readily than feldspar. As a mill addition, the micronized nepheline syenite showed evidence of increased solubility in the enamel glass as compared to the coarser grades of nepheline syenite.

Acknowledgment

The authors wish to express their gratitude to American Nepheline Limited of Lakefield, Ontario, Canada, and to the Great Lakes Foundry Sand Company of Detroit, Michigan, whose Fellowship at the University of Illinois has made this work possible.

The outlook for electrical products

"defense economy" will continue to govern performance in the electrical manufacturing industry during 1952

by W. J. Donald • MANAGING DIRECTOR, AND *A. J. Nesti* • CHIEF STATISTICIAN, NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION, NEW YORK CITY

TOTAL sales of electrical appliances, machinery and equipment in 1952 will taper off only slightly from the all time sales peak of $12 billion set in 1951.

However, the electrical manufacturing industry, like all other industries, will produce in 1952 only those products that the mixed defense and non-defense economy will permit; for global defense planning and most governmental controls, together with the high taxes necessary to finance both, are likely to continue at least through the coming year.

Expect some dislocations

Total business in the industry is expected to continue at a high level—but dislocations in the various branches of the industry will probably be greater than during the past year. In fact, for strictly electrical products, 1952 will be more like the latter part of 1951. During that period the effects of material shortages, increased defense production, tightening of some governmental controls, loosening of other governmental controls, and new increases in Federal taxes of all kinds, combined to create serious declines in those branches of the industry producing electrical appliances, illuminating equipment, and electrical building equipment and supplies.

1951 greatest electrical products year — $12 billion volume

The industry as a whole shipped a greater volume of electrical products in 1951 than at any other time in its history, with total sales exceeding 1950, the previous peak, by 20%, reaching a total volume of more than $12 billion. Even allowing for the factor of inflation, this represents a considerable gain. And, to this, there must be added an unknown but appreciable volume of output of nonelectrical products in order to appreciate more fully the industry's entire productive effort.

Industrial apparatus, such as motors, welding equipment, industrial controls, etc., increased sharply over 1950 with shipments 50% greater. Sales of insulating materials, like mica, porcelain, laminated products, vulcanized fibre, etc., were 40% higher; and generation, transmission and distribution equipment volume was 1/3 higher than in 1950.

Appliance volume for '51 only 10% off from '50 peak

Sales of electrical appliances, on the other hand, which for the first six months of 1951 were 10% above the sales for the same period in 1950, were, for the entire year 1951, 10% less than 1950 sales. This reversal of trend was due largely to the severe decline in sales of refrigerators during the last few months of the year. Sales of this item for the first half of 1951 equalled the sales for the first half of 1950. However, the sales for the entire year 1951 were 30% less than the 1950 sales, indicating the heavy drop in sales during the last half of the year. Manufacturers of some of the newer appliances, like food waste disposers, dishwashers, and freezers, experienced heavy gains, and bolstered the general appliance picture.

Illuminating equipment, exclusive of residential lighting, showed an over-all increase in sales in 1951 or 40% over 1950. However, this increase stood at 70% for the first half of the year as compared with the first half of 1950, illustrating the decline during the latter months of 1951. Similarly, while electrical building equipment and supplies, including such items as panelboards, fuses, wiring devices, etc., experienced an increase in sales in 1951 of 50% over 1950 sales, the latter months of 1951 showed a growing decline in new business.

Overall sales drop to be 5% for 1952

These adverse trends are accentuated as we look into 1952. It is expected that sales of electrical products in total will drop off about 5% from the 1951 volume. Sales volumes will remain about the same or slightly higher for industrial apparatus, insulating materials, insulated wire and cable, and generation, transmission and distribution equipment.

All appliances, with the exception only of appliances of the commercial type, are expected to suffer a drop in sales varying between 10% and 25% from 1951, with an average drop of approximately 15%. Illuminating equipment is expected to fall off in sales by approximately 20%, and sales of electrical building equipment and supplies are expected to drop off 15% in 1952. Automatic temperature controls and specialty transformers which registered appreciable increases in business during 1951 are also expected to show declines in sales for 1952 amounting to approximately 10% from 1951 volumes.

New defense orders needed to strengthen the "soft spots"

And so the industry looks forward to 1952 with serious questions before it; not questions about its own abil-

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Business outlook for gas appliances

increased sales not expected—no change in advertising and promotion; defense contracts—"break-even" points

by Edward R. Martin • DIRECTOR, OF MARKETING & STATISTICS, GAS APPLIANCE MANUFACTURERS ASSOCIATION, NEW YORK CITY

MANUFACTURERS of gas appliances and equipment, along with manufacturers of other consumer goods, enter 1952 with many of the same problems which confronted them in January, 1951. A year ago we looked ahead, wondering about the availability of metals for production of consumer goods, manpower and defense contracts. We were also wondering whether we would be converting any of our production facilities to defense work. These questions are still confronting a great many manufacturers.

Last year, in making our "General Business Outlook Survey" (*February 1951 finish*, we prefaced each question with the phrase: "short of all-out war and assuming world and national conditions remain unchanged." This year the entire civilian production field still views the coming year with much the same uncertainty. He is a brave man indeed, who attempts to forecast the volume of business, or even the conditions under which business will operate for the coming year.

Several years ago we recognized that the men best acquainted with our business conditions were the manufacturers who are in daily contact with competition, production schedules, development of markets and government controls. Upon the judgment of these men rests the progress of our industry. It is upon that concept that our "General Business Outlook Surveys" are based.

Accuracy of 1951 survey

A year ago the concensus of manufacturers of domestic gas ranges, replying to our survey, was that sales would be about 25% below 1950 levels, and would approximate 2,325,000 units. Actually, 1951 sales approximated 2,400,000 units.

Manufacturers of automatic gas water heaters looked for a drop during 1951 of about 25% as compared with 1950. They ended 1951 about 15% below 1950 levels.

Manufacturers of gas-fired central heating equipment looked for a drop of 22% in 1951 from 1950 levels. Limitation orders, aimed at restricting the use of natural gas for house-heating purposes in various areas, had, as would be expected, a definitely negative reaction and pushed sales to a point well below where they would have been after what might be termed a "normal" drop. Sales of gas-fired central heating equipment in 1951 were about 40% below the record sales year of 1950. This was also true of floor furnace sales.

In the case of direct heating equipment, manufacturers expected a 22% drop from 1950 levels. They ended 1951 about even with 1950. One of the contributing factors was gas restrictions. These manufacturers were in a position to take advantage of the versatility of their products.

Because of this proven ability of manufacturers to estimate, this type of survey takes on added significance and permits us to view the year ahead through the eyes of many, for it weighs and summarizes the majority thinking.

The 1952 survey

Actually, our general business outlook should not be regarded as a matter of "long-haired, crystal-balling." It is a weighted compilation of the thinking of gas appliance manufacturers, as of December, 1951.

The questions asked of manufacturers related to: (1) expected volume of business in 1952, (2) advertising and promotion expenditures during 1952, (3) defense contracts—1951 and 1952, and (4) "break-even" point. These questions were asked because they are the questions which manufacturers most often ask GAMA.

Perhaps the most significant question asked relates to "break-even" point, which was defined as: "using 1951 production of gas appliances and equipment as 100%, and assuming no serious cuts in the average 1951 employment during 1952, what is the minimum percentage of 1951 production of gas appliances and equipment which will permit you to operate out-of-the-red?"

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1952 Estimated Volume of Gas Appliances

(Figures in brackets represent weighted average per cent decreases or increases)

		Estimated 1952 Unit Sales
Automatic water heaters	(—19%)	1,620,000 units
Domestic gas ranges	(—24%)	1,825,000 units
Commercial cooking equipment	(—12%)	———
Unit heaters	(—22%)	———
		Estimated 1951 Unit Sales
Central house heating equipment	(+ 3%)	610,000 units
Direct heating equipment	(same)	2,000,000 units
Floor furnaces	(— 5%)	280,000 units
Incinerators	(greater)	not available
Clothes dryers	(same)	not available

McDANEL
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McDanel's *patented* Mill Head Assembly consists of an overhanging type door frame, brick and door block completely covering all metal parts. It keeps mill slip from grinding on iron . . . keeps those partially ground materials which cling to the mill door from falling into slip as mill is discharged. It insures a completely pure, completely uniform result.

To wet grind your enamel, simply charge mill, close mill head, and insert grinding plug (Photo B). When grinding is completed, the perforated discharge plug (Photo C) is substituted for the grinding plug. *The Mill Door is left in place.* No unground particles get shaken or jarred into slip by door removal!

For full purity and uniformity of batch, and for longer and more economical mill head service, install McDanel Mill Head Assemblies throughout your mill room.

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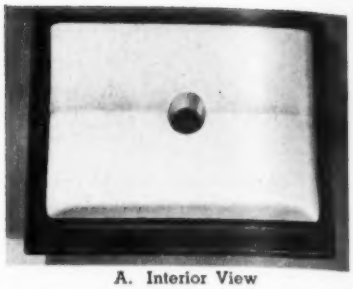
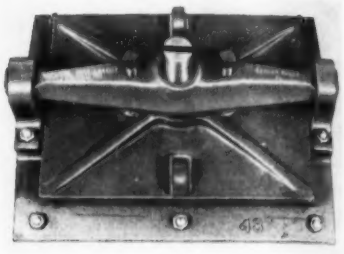
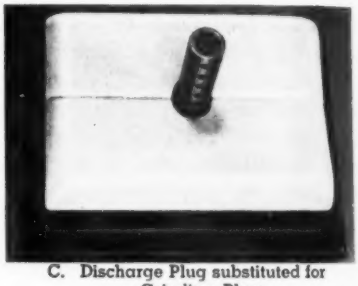
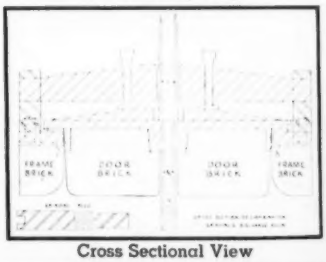

A. Interior View


B. Top View


C. Discharge Plug substituted for Grinding Plug



Cross Sectional View

Solid Door for Dry Grinding

West Coast Representative
Fernholtz Machinery Co.
8468 Melrose Pl., Los Angeles 46, Calif.

McDANEL *Industrial* PORCELAINS

McDANEL REFRACTORY PORCELAIN CO.
BEAVER FALLS, PENNA.

Chicago Vitreous Enamel Product Company
Exclusive Representative for the Enameling Industry

New design for mass production of Sylvania lighting fixtures

new design results in interchangeable component parts, reduction in number of parts, increased production flexibility, and reduced packaging costs

A NEW approach to volume production of better fluorescent lighting fixtures at costs lower than heretofore attained, even in the face of today's rising prices, has been announced by the management of the Lighting Division of Sylvania Electric Products Inc.

In the past it has been common practice to design lighting fixtures for specific applications which has resulted in a fixture line of complete dissimilarity with respect to the individual fixture types. Careful consideration of all industrial applications has resulted in the design of a complete line of industrial lighting fixtures which will use a series of basic interchangeable componets. This new approach to the problem will result in major cost reductions, since all phases of manufacturing of this product have been carefully considered by Sylvania.

Individual parts reduced from 71 to 15

As an example of the economies which are reflected in this new line of industrial lighting fixtures, approximately 71 individual parts which were previously required have now been reduced to not more than 15. By means of unique tool design for the industrial reflectors, great savings have been accomplished in tool cost, production control of and investment in raw material parts. This results in reflectors being available for over 30 types of open and closed end fixture types to meet the exacting requirements of every general industrial lighting need.

Such details as die set ups, assembly operations, standardization of packing materials, and even due consideration to raw material and finished goods inventories have been considered and simplified to produce the end result of lower costs and greater yield of the finished product.

The Sylvania fiftieth anniversary series, as this new line has been named, makes available a choice of completely RLM approved fixtures with vitreous enamel reflectors and top housings, if required. High temperature baked enamel finishes processed by the already well known

to Page 84 →

Economies resulting from redesign of industrial lighting fixtures reduce the number of parts from 71 to 15. Appreciable reduction in the number of pieces of packing material is also shown.

Washline Gossip

has gone modern, too!

Let PEMCO solve your technical problems . . .

Pemco provides a continuing service for the porcelain enameling and ceramic industries. Give our field engineer an opportunity to come in and discuss your shop problems with you. Wire, phone or write today! There's no obligation of course!

"After All, It's the Finish that Counts"

Washday used to be quite a chore for mother, but with modern washing machines and automatic clothes dryers Mondays are no longer blue and forbidding. Today's housewives can gossip about their gleaming white electrical appliances and the wonders of porcelain enamel that doesn't wear or mar, is so easy to keep spotlessly clean, and stays beautiful year after year after year. If you manufacture household appliances, or any product that will be the better for a porcelain enamel finish inside and outside, you owe it to the integrity of your trade-name to check the superior advantages of Pemco Porcelain Enamel that offers the economy of performance which only uniformity can assure. Production-proven Pemco materials have become the measure of progress in the porcelain enameling industry.

PEMCO CORPORATION *"Always Begin with a Good Finish"*

5601 EASTERN AVE., BALTIMORE 24, MARYLAND

Copyright 1952, Pemco Corporation

"THE WORLD'S FINEST" PORCELAIN ENAMEL FRITS • GLAZE FRITS • PORCELAIN ENAMEL COLORS • GLAZE STAINS • GLASS COLORS AND RELATED CERAMIC MATERIALS

Winter homefurnishings market

more beautiful trim on new appliance models than at previous markets

THE Winter Homefurnishings Market, held the second and third weeks of January at The Merchandise Mart and the American Furniture Mart, Chicago, was highlighted by much more beautiful trim for new appliance models than in preceding markets. This was taken by observers as an indication that a buyers' market definitely still exists, and that manufacturers are vieing with each other to get their share of the market by appealing to the aesthetic sense of American housewives.

No shortages for consumers

At a press conference at The Merchandise Mart, C. W. Theleen, manager of sales, Major Appliance Division, General Electric Company, stated that although appliance production during 1952 will not equal that of 1951, this does not necessarily imply a year of shortages for consumers. The average consumer should have no great trouble in obtaining the appliances he wants this year, said Theleen.

"It is true that shortages have been predicted in many lines," he added, "but they are not with us seriously now, and because of fast-changing conditions may never materialize."

Availability of steel

At another press conference, John F. Smith, vice president in charge of sales, Inland Steel Company, stated that barring all-out war and no drastic changes in defense blueprints, there should be more steel available for consumer products as we get further into 1952, especially during the last half of the year.

He stated that already sheet steel producers from other areas of the country are entering the Chicago market with supplies for sale, for, unlike other sections of the country, there is no surplus of steel in the Chicago area.

Nance stresses necessity of maintaining quality

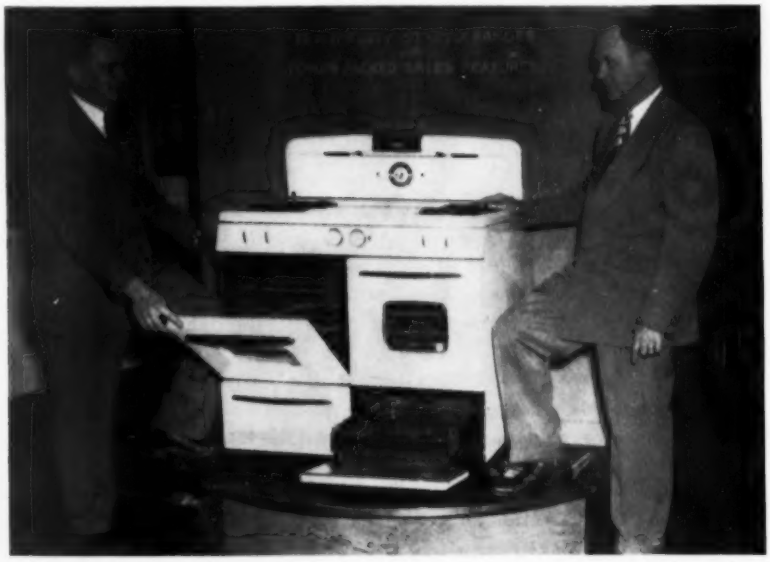
Speaking before a group of business and trade editors at a luncheon at the Blackstone Hotel at the opening of the market, James J. Nance, president, Hotpoint, Inc., said that "It is much more important to a national manufacturer to maintain quality in its products than it is to strive for high outputs in emergencies. The quality of our 1952 products, which will include many different materials than formerly, will be equal in every respect to former production. . . .

"The over-production of some appliances last spring, and the similar inventory situation that developed in 1949 when the industry was readjusting from World War II, have pointed up one basic problem that even yet is not licked in the consumer durable goods industries. New manufacturing facilities have practically doubled the manufacturing capacity for appliances, as well as automobiles and other durables since the war, but *the marketing structure has not grown apace.* It takes time to develop local skilled selling organizations and strong competition has not been present enough of the time to force this either for manufacturers or for distributors and dealers. Because we are building for future marketing, we did not cut back our promotion and advertising at any time during 1951, even though material restrictions did cut back production. We are now planning to continue full promotion, advertising and selling campaigns during 1952; in fact, we

One of the new appliances shown at the market was Cribben & Sexton's "Wheel About" storage cart which glides into and out of the range for use in any part of the kitchen.

WHO WILL BE THE NEXT
PRESIDENT OF THE UNITED STATES
WESTINGHOUSE SPONSORS
ON A NATIONAL CBS-TV & RADIO NETWORK
1 REPUBLICAN & DEMOCRATIC NATIONAL CONVENTION
2 A-"GET OUT AND VOTE" CAMPAIGN
3 ELECTION RETURNS

Buyers were attracted to the Westinghouse exhibit by two pretty models. One of the models is shown here with their much talked-about puppet show.



Two officials of Samuel Stamping & Enameling are shown with one of their new ranges which were introduced for the first time.

finishfotos

A highlight of Hotpoint's exhibit was an "engineer's dream" of an electronic range which cooked cellophane-wrapped hot dogs for buyers.

are stepping up many of our educational activities to build for the future despite even further production restrictions. . . .

"To summarize the outlook for 1952 in the appliance industry, it looks from here like more of the same. We played it by ear in 1951, and with the reopening of the question of the extent of defense and civilian programs during recent weeks, it looks like we will have to continue to play it by ear. Again, as last year, we at Hotpoint are going to play it down the middle, a little on the high side," concluded Nance.

Cribben & Sexton marks 80th anniversary with a new product

Cribben & Sexton, marking their 80th anniversary, brought out one of the really-new appliances shown at the market. Their new Universal gas range features a "Wheel About" table-top storage cart which glides into and out of the range for use. The cart has a cutting board, drawers, and rolls on four wheels.

Samco shows first ranges

Samuel Stamping and Enameling, long-time supplier of burners to the stove industry, introduced their first ranges at The Merchandise Mart. Both gas and electric models were shown, ranging from 36″ double-oven units to 18″ apartment-size units.

Universal shows dryer

The new Universal Major Electric Appliance Company showed its entry into the dryer market. Their new unit is said to circulate 90 cubic feet of warm air every minute through the clothes being dried. An infra-red germicidal unit is also employed.

Up-right apartment freezer

Sanitary Refrigerator showed a four-cubic-foot freezer for use in apartments or small homes. The freezer stands up-right with the door opening like that of a refrigerator. The unit holds up to 200 pounds of frozen food, and requires only 4½ square-feet of floor space.

Apex shows mobile dishwasher

Apex Electrical Mfg. displayed a new mobile dishwasher, having a

four-gallon Fiberglas water heater tank which makes the unit independent of the home hot water supply. The unit was said not to require special plumbing for installation.

Perfection shows refrigerator

In addition to its new range models, Perfection Stove introduced its entry into the refrigerator market (*see November* finish). Perfection also showed new gas wall heaters designed for use in small areas such as bathrooms, dens and washrooms. The heaters are said to be easy to install in the walls of new or existing structures.

Estate celebrates 110th year with a gold-plated range

Estate Stove displayed a 24 kt. gold-plated range to commemorate the 110th anniversary of the firm's founding. Their regular new line of ranges features a top griddle which can be hid away when not in use by folding down the flush-to-top cover.

Estate merchandising and promotional plans call for a tie-up with Duncan Hines, well-known food authority. The Duncan Hines label of approval will appear on every Estate range.

Automatic defrosting for major refrigerator lines

Advancements in automatic defrosting and extension of this feature to the refrigerators of virtually all major producers was an outstanding industry-wide development in the major appliances noted during the market.

Norge, the originator of automatic defrosting, had an improved high speed system in its refrigerator line. A feature of the Norge range line is a "pick-a-pan" storage which consists of slide-out racks with hooks for holding utensils, plus door shelves for condiments and kitchen tools.

Admiral introduced "flash defrosting" which is accomplished in from 7 to 10 minutes by pushing a button which activates a heating element. The freezer door in Admiral's 12.2-cubic-foot refrigerator had additional space for storage of frozen juices or foods in small packages.

Kelvinator's new refrigerators are

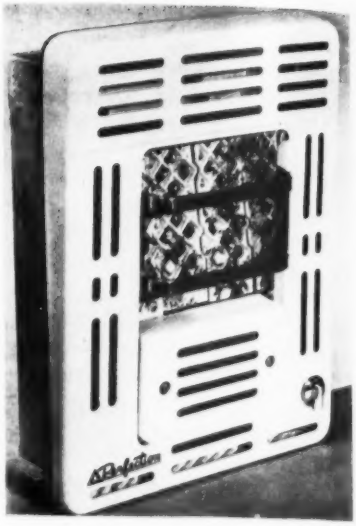
R. M. Mitchell, left, shows Whirlpool's new automatic washer and dryer units which won the Fashion Academy Gold Merit Award for 1952, to H. M. Wickman.

Sanitary Refrigerator displayed an apartment-size upright home freezer which holds up to 200 pounds of frozen foods.

finishfotos

Universal Major Electric Appliance's line was featured by this home freezer model, and their first clothes dryer.

Left: This mobile Apex dishwasher has a four-gallon water heater tank which makes the unit independent of the home hot water supply.



Right: Perfection's gas wall heater is designed for use in small areas such as bathrooms, dens, and washrooms.

equipped with a "magic cycle" high-speed, self-defrosting system which was said to be the first in the industry to permit complete and rapid automatic defrosting without resort to electrical heating devices.

Westinghouse puppet show

Buyers were greeted at Westinghouse's space at the American Furniture Mart by two beauteous belles. Next they were treated with a puppet show featuring a donkey and an elephant discussing the 1952 presidential election.

To dramatize the firm's new "Frost-Free" refrigerator, one of the new models was equipped with a fire alarm bell which rang at every 60th door opening. Buyers who opened the door at this time received one of the new refrigerators free.

Magic Chef jubilee range

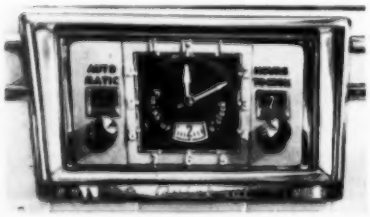
Magic Chef (formerly American Stove) displayed a new line of Golden Jubilee ranges. The company also showed a line of "color harmony" heaters, with a choice of four different color panels.

Whirlpool shows Fashion Academy winners

Whirlpool featured their twin automatic washer and dryer units, recipients of the 1952 Fashion Academy Gold Merit Award for their "beauty of design."

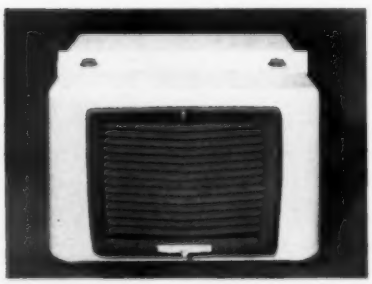
L&H custom-built range

Lindemann & Hoverson displayed their new custom-built "Adapto" range for homeowners who wish to do their own kitchen planning.



Just a twist of the knob, and Philco's range timer turns on the oven, cooks the meal, and then turns the current off at the time desired.

Crosley's new 3/4 hp room air conditioner has a 3-way adjustable outlet grill to direct flow of air to any part of room.



This new Deepfreeze home freezer holds more than 450 pounds of frozen food.

ADS OUT

Washer, ironer, dryer manufacturers hold annual meeting

F. M. Mitchell elected president of American Home Laundry Manufacturers' Association

THE home laundry equipment industry's defense production goal for 1952 should be "at least one-half of our productive capacity," declared George P. Castner, retiring president of the American Home Laundry Manufacturers' Association, at the annual AHLMA meeting held January 5 at the Morrison Hotel in Chicago.

"This is important not only from an operating angle so that we can survive, but also from a patriotic standpoint, so that we all can make full contribution to the defense production effort which is so vital to our country," said Castner, who is also general manager of Beam Mfg. Co., Webster City, Iowa.

Regarding materials shortages, Castner stated that "It looks as if we have come to a point where steel no longer will be the controlling factor in the production of home laundry appliances. Restrictions on aluminum and copper are much greater for the first quarter. Preliminary statements indicate that these two important items will be restricted further in the second quarter....It may be 1953 before greater relief in copper and aluminum will be forthcoming."

1952 materials allotment

Harry J. Holbrook, director of the NPA consumer durables goods division, told the home laundry equipment manufacturers that enough household washers, dryers and ironers "to meet the most pressing needs of the public" is Washington's goal in the 1952 allotment of critical materials.

"We recognize the fact that your industry has an important job to do, not only in supplying many homes with new appliances, but also in furnishing a regular supply of replacement parts to keep in operation the washers, dryers and ironers already in use." Holbrook declared.

"There is not going to be sufficient steel, copper and aluminum available over and above defense needs to keep any consumer goods industry operating at the 1950 rate or even close to it, but I can assure you that there is nothing in the air to indicate that the government wants the American housewife to go back to the old fash-scrub board."

Discussing methods by which the home laundry industry is coping with metal shortages, Holbrook said that "there has been a very considerable substitution of cast iron and plastics for scarce aluminum. One of your Association members saved 150,000 pounds of aluminum in 1951 by using cast iron in certain instances. Use of plastics for aluminum in agitators permitted a year's saving of more than 400,000 pounds of aluminum by one company. Enameled steel also is being used to replace aluminum sheet. We are impressed by the desire for cooperation which members of this industry have shown, in sometimes going to considerable expense

AHLMA Officers for 1952

President: F. M. Mitchell, manager, laundry equipment sales, Frigidaire Division of GMC, Dayton, Ohio

1st Vice Pres.: Raymond J. Hurley, chairman of the board, Thor Corporation, Chicago

2nd Vice Pres.: Lloyd I. Sweetland, assistant to vice president, Hotpoint, Inc., Chicago

3rd Vice Pres.: W. R. Dabney, vice president, Ironrite, Inc., Mt. Clemens, Michigan

Treasurer: Howell G. Evans, vice president, Hamilton Manufacturing Co., Two Rivers, Wisconsin

Left to right: Louis C. Upton, chairman of the board, Whirlpool, and a former president of AHLMA; Frederick M. Mitchell, manager of home laundry equipment sales, Frigidaire, and newly-elected president of the Association; and Harry J. Holbrook, director of NPA's consumer durable goods division.

H. E. Shepard, of Appliance Engineering Company, and J. W. Mitchell, of Rupert Die Casting Company, both of Kansas City.

A. C. Fallon, of Ironer Division of Speed Queen Corporation; and J. W. Labisky, of The Barton Corporation.

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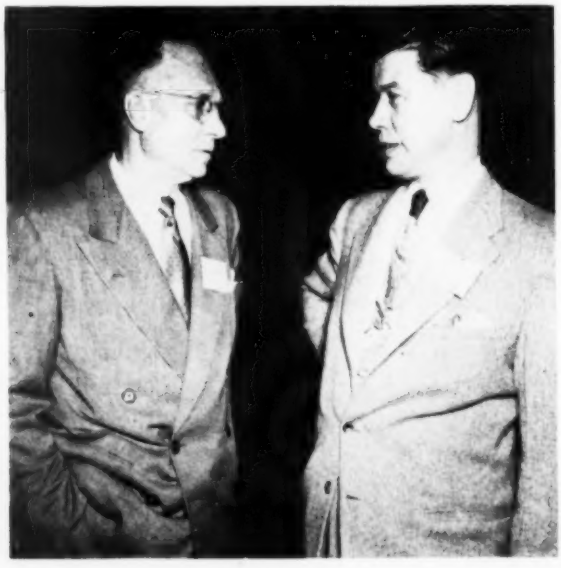


R. W. Kortum, of Horton Manufacturing Company, and Russell A. Lawson of Monarch Aluminum Company.

to redesign a product so that strategic materials in short supply can be saved.

"Your industry reduced the use of aluminum in washers from an average of 21 pounds per unit to an average 9 pounds in the past year, when you also were making great efforts to reduce your use of copper and brass."

Outlook for copper and nickel

Looking ahead, Holbrook told the Association that the scarcity of copper "will not be alleviated until completion of the expansion of transport and communication facilities and new electric power plants needed for production of more aluminum. Aluminum production is expected to rise rapidly in 1952. Nickel, which is essential in the alloys for the heating elements of household dryers and ironers, stands today at the very top of the scarcity list.

New era of sales activity

A new era of sales activity in the conventional, or wringer-type household washer field, was the forecast made by Walter K. Voss, chairman of the AHLMA conventional washer division, and president and general manager of Voss Brothers Manufacturing Company, Davenport, Iowa.

"The conventional washer, the foundation on which today's great industry was based, has been too much taken for granted," Voss said. "We have been missing an opportunity and neglecting a duty in not coming to the front and telling our story of the advantages inherent in our product. Furthermore, new operating techniques now add to the labor and time-saving features of the product."

Voss announced that a special committee of Association members and representatives of allied industries is engaged in a study of promotion plans which will be designed to stress features exclusive with conventional washers.

"Many millions of our washers are at work in homes of this country and throughout the world and we have an obligation to the owners, present and future, to tell and to reiterate

the salient advantages of our particular type," he said.

AHLMA plans study of basic sales training practices

Planned for 1952 by the Association is a study of basic sales training practices, with the objective an educational program sponsored by the organization and designed for retail appliance sales forces serving the industry. The Association's executive committee approved the study, as proposed by Richard J. Sargent, manager, home laundry equipment division, Westinghouse Electric Corporation, and chairman of the trade group's automatic washer division.

In proposing the study, Sargent cited the experience of professional shoppers employed by *The Salt Lake Tribune-Telegram* to test the sales methods of electrical appliance salesmen in the community. They found that more than two-fifths of all salesmen approached when they were not busy, did not greet the "customer" for two to three minutes. Only one-tenth took the name and address of the shopper or attempted to make an appointment for a home demonstration. Two-thirds failed to ask the shopper if she owned an appliance of the kind under discussion, or to offer to make a trade-in appraisal or to explain the store's selling plans.

In 56 per cent of all cases the salesman did not ask the shopper to buy. In 69 per cent of the calls, the salesman neither gave the prospect his business card nor told her his name.

"This is only a sample of our modern-day selling effort," Sargent said. "The sad part of it is, it is not the least bit peculiar to Salt Lake City. . . .

Need thorough study of modern sales training

"Our industry has a tremendous responsibility — you can even call it a duty — to make a thorough study of modern sales training practices in an honest effort to develop a basic program that would have universal acceptance by retailers and retail salesmen.

"To our knowledge, very little ever

Left to right: Bert Schmelz, Leo Darts, Zach K. Waldron, and Dominic Wilson, all of Ball Brothers Co., new associate member of AHLMA,

R. M. Mitchell, Whirlpool; E. H. Madson, Chamberlain; R. C. Upton, Whirlpool; and D. B. Anderson, Nagel-Chase.

finishfotos

L. C. Upton, Whirlpool; R. S. Ingersoll, Ingersoll Products; R. M. Buddington, Inland Steel; and J. H. Ingersoll, Ingersoll Products.

Now... a foolproof, low-cost timer for washing machines and dryers!

The Lux Clock Manufacturing Company, largest maker of precision timing instruments for industry, announces an important new timing development for manufacturers of washing machines and dryers. Called the 1600 SERIES SEQUENCE TIMER, this latest Lux timing development employs the use of a simple accessory switch attached to the famous Lux Minute Minder which was developed more than 20 years ago and has proved so reliable on hundreds of products and hundreds of thousands of installations throughout the years.

The spring driven mechanism on the new 1600 SEQUENCE TIMER requires no electrical wiring for power and no timer switch is needed. Exhaustive field tests clearly prove the timer's reliability and excellent shelf life in the face of infrequent operation. Compact and unusually simple in construction, the new Lux timer generates no heat itself and does not add to the adverse effect of high ambient temperature.

Available with 1 to 4 single-throw switches.
Range: 30 — 60 — 120 and 180 minutes.

Approved by Underwriters' Laboratories for 25 amps, 230 volts, ½ h.p. — A.C.

For the full story on this foolproof, low-cost timer get in touch with LUX today!

LUX CLOCKS

The LUX CLOCK MANUFACTURING CO., INC.
WATERBURY 20, CONNECTICUT

Direct all inquiries to Lux, 80 Johnson Street, Waterbury, Connecticut

has been done by any trade association in the field of basic sales training. Here, then, is an opportunity for ours to take the leadership in this important effort," concluded Sargent.

Synthetic detergents

Corrosive effects created by synthetic detergents used in household washers have been lessened by the introduction of so-called "inhibitors" into the products but the degreasing effects continue and in some cases have necessitated changes in design and in the materials used for the appliance parts particularly exposed to them, it was announced by Philip P. Glassey, vice-president in charge of engineering, Easy Washing Machine Corporation, Syracuse, N. Y., and chairman of a special sub-committee of AHLMA's engineering committee. He declared that the manufacturers of the synthetic detergents, or "syndets," are working closely with the producers of household washers and that the problems involved in the use of the cleaning agents thus are steadily becoming less serious.

Films promoting household ironers now available

Films for television, promoting automatic household ironers in a combination of straight photography and animated cartoons and run originally by stations for their straight entertainment value in homemakers' programs now are being offered by the AHLMA ironer division for use on locally-sponsored time, reported Joseph Groshans, its chairman, and general sales manager, Ironer Division, Speed Queen Corporation, Algonquin, Ill.

One-half of all stations responding to the committee's inquiry have expressed a desire to screen the films with a view to placing them at the disposal of their sales departments, Groshans said. Ironer merchandisers in the Association membership also are at liberty to use the films as they please, sponsored by themselves or by arrangement with distributors and dealers.

When the films have run their course on TV, each member of the ironer group may enter into his own arrangements for sponsoring the films in motion picture houses.

"We feel that no worthy effort can be exerted on behalf of any branch of our industry without its resulting to the benefit of all parts of it," Groshans said. "Anything which is done to promote the ease, convenience, economy and all the other virtues which can be claimed, of using any of the four appliances made by our members is bound to aid all of us, because it thus helps to keep the whole entire home laundering operation where it belongs, which, of course, is in the home."

A. E. Lent, of General Electric Company; A. T. Blakemore, of Conlon-Moore Corp.; and J. E. Britt, of Mullins Manufacturing Corp.

Dryer sales since 1946 total 1,000,000 units

Sales of automatic tumbler-type home washing dryers have reached a total of more than 1,000,000 since the beginning of 1946, reported Ray G. Halvorsen, chairman of the AHL-

Bill Phillips, of The Dexter Company, with Willard A. Rapp and W. L. Gunkel, both of The Meyercord Company.

finishfotos

George P. Lamb, the Association's Washington counsel; Paul A. Welchans and W. N. Chapman, both of Thor Corporation.

George P. Castner, left, general manager of Beam Manufacturing Company, and retiring president of the American Home Laundry Manufacturers Association, welcomes the trade group's new executive secretary, John J. Reinecke, for nine years holder of a similar position with the Wood Office Furniture Institute, in Washington, D. C.

MA dryer committee and general sales manager of Hamilton Manufacturing Company, Two Rivers, Wis.

"No other household appliance has achieved such volume in so short a period," Halvorsen declared. "Sales of 3,700 units, one brand name, in 1946, grew to an estimated total of 500,000 in 1951, with seventeen brand names. Many in the industry believe that 10,000,000 dryers, or more, will be sold in the next ten years if the materials situation permits."

"Because of the rapid growth of dryer sales in the past 18 months, the base period is not at all representative of the industry's urgent need for critical materials. Some of our manufacturers have been able to transfer steel from other product lines to dryers. . . . It appears that dryers, with few exceptions, will continue on allocation."

Freight rates going up

Drastic increases in freight rates and consequent cost of shipping household appliances will become effective February 1, warned J. G. Borson, traffic manager of Hotpoint, Inc., and chairman of the AHLMA traffic committee.

The present cost of shipping a carload of eighty-four household washers to New York City from Chicago is $377.64, or $4.50 per washer. The new charge will be $510.61 per car, or $6.08 per washer.

"It was impossible to comply with an original decision and order of the Interstate Commerce Commission directed toward establishing uniform rates and ratings throughout the country without unreasonably increasing freight costs in one area or decreasing them in others to the point where railroads in that territory could not afford to operate," Borson said. "Now the Commission has finally ordered a new uniform classification which, particularly on complete houshold appliances, will result in drastic increases in freight rates, which will be further heightened when a new uniform freight rate scale becomes effective."

Green named chairman of AHLMA associates group

George W. Green, manager of manufacturers' sales, The B. F. Goodrich Company, Chicago, is the new chairman of the Associates committee of the American Home Laundry Manufacturers Association. Fred P. Stratton, of Briggs & Stratton Corporation, Milwaukee, is the new vice chairman.

New associate members

Three newly-elected Associate members were announced as follows:

Fels & Company, Philadelphia, Pa., soap manufacturer.

Ball Brothers Company, Muncie, Indiana, maker of soap cups for automatic washers.

Climalene Company, Canton, Ohio, maker of detergents.

Summer meeting to be held at Mackinac Island

The Association's 1952 summer meeting is scheduled to be held at the Grand Hotel, Mackinac Island, Sunday, July 27, to Wednesday afternoon, July 30. The Association also met there in 1947, 1948 and 1949.

Sixth home laundry conference in New York, October 29-30

The Association's 6th Home Laundry Conference will be held at Hotel Commodore, New York City, October 29 and 30 .

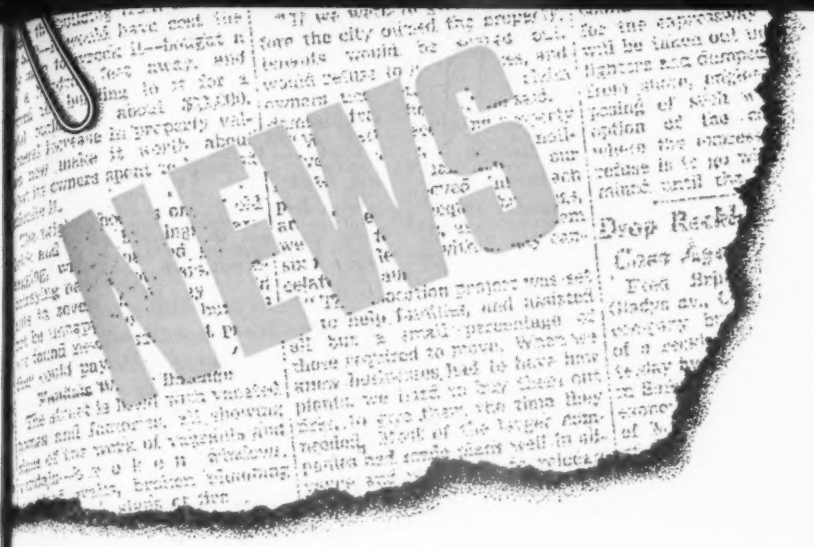
1952 AHLMA Executive Board

Conventional washer division: F. W. McGrath, vice president - sales, Appliance Manufacturing Co., Alliance, Ohio; R. P. James, general sales manager, Speed Queen Corp., Ripon, Wisconsin

Automatic washer division: R. J. Sargent, manager, home laundry equipment division, Westinghouse Electric Corp., Mansfield, Ohio; Elisha Gray, president, Whirlpool Corporation, St. Joseph, Mich.

Dryer division: R. G. Halvorsen, sales manager, Hamilton Manufacturing Co., Two Rivers, Wisc.; Parker H. Ericksen, director of sales, Bendix Home Appliances, Inc., Division of Avco Manufacturing Corp., South Bend, Indiana.

Ironer division: M. A. Toussaint, vice president, Conlon-Moore Corp., Chicago; Hal L. Biddle, sales manager, Ironrite, Inc., Mt. Clemens, Michigan.



UNITED STOVE HEAD RESIGNS

It has been reported that Harold H. Miller, president of United Stove Company, Ypsilanti, Michigan, has resigned. He was also general manager and a director of the company.

TENER HEADS PERFECTION MARKET RESEARCH DIVISION

Perfection Stove Company has announced that A. J. Tener, vice president, has been named director of market research, reporting directly to D. S. Smith, Perfection president. J. C. Scott was appointed assistant director.

The newly-created market research division will be concerned with market analyses, sales forecasts and studies of marketing areas, territorial boundaries, etc.

COOLERATOR NAMES FINK APPEARANCE DESIGN DIRECTOR

Robert R. Fink has been appointed director of appearance design, according to R. E. Deaux, chief engineer, The Coolerator Company, Duluth.

A veteran of 10 years in the industrial design field, Fink was formerly associated with the visual design department of Hotpoint, Inc., in designing major home appliances. His prior experience also includes design origination for Stewart-Warner Corp., the Guide Lamp Division of GMC, and DuPont.

As director of appearance design, Fink will originate and supervise appearance designs of Coolerator refrigerators, ranges and home freezers.

SCRAP SALVAGE STAMPS BOLSTER NATIONAL DRIVE

Tens of thousands of colorful sticker stamp reminders are being employed throughout the steel casting industry to help stimulate expanded iron and steel scrap salvage on a national basis.

Distributed by the Steel Founders Society of American, the red-white-and-blue stamps carry the urgent plea, "Keep the Scrap Coming Back for High Production in Steel Castings," to emphasize the fact that for every ton of steel castings needed for defense, an equivalent ton of steel scrap is required.

F. Kermit Donaldson, Society executive vice president, said that the stamps are being made available for use on all correspondence and literature of industry representatives to customers, suppliers, and other potential sources of vital scrap supply in all parts of the country.

ADS OUT—

ADMIRAL POSTER CAMPAIGN

A 24-sheet outdoor poster campaign to promote Admiral radios and household appliances in 202 cities without television stations began January 15, Seymour Mintz, advertising director, Admiral Corporation, announced. The company's 1952 refrigerators will be shown beginning March 15.

ARMSTRONG PRODUCTS RETAINS DESIGNERS

Smith & Scherr, industrial designers of Akron, Ohio, have been retained by Armstrong Products Corp., Huntington, West Virginia, to design and develop the company's future products. Armstrong manufactures gas and electric appliances, hardware specialties, and gas floor and wall heaters.

NEW INGERSOLL PROD. MANAGER

W. W. Kovalick has been promoted from chief engineer to production manager of the Chicago plant of Ingersoll Products Division, Borg-Warner Corp. He succeeds J. W. Dean who resigned.

H. T. Burke, formerly chief tool engineer, will become acting chief engineer. The promotions were announced by J. A. White, divisional vice president and works manager.

WORLD TRADE FAIR IN CHICAGO

The 2nd Chicago International Trade Fair will be held at the Navy Pier, March 22 to April 6.

At the first fair, held in August 1950, 2,200 exhibitors from 44 nations participated, and the fair attracted 25,000 buyers.

WHIRLPOOL, CLYDE PORCELAIN MERGER APPROVED BY DIRECTORS

A proposed merger of Whirlpool Corporation, St. Joseph, Michigan, and Clyde Porcelain Steel Corporation, Clyde, Ohio, has been approved by the boards of directors of both corporations.

The announcement was made jointly by Louis C. Upton, chairman of Whirlpool, and Thornton E. Stokes, president of Clyde Porcelain. The merger proposal will now be presented to the stockholders of the two companies.

Whirlpool Corporation, until 1950 known as Nineteen Hundred Corporation, was founded in 1898 and for

many years has produced a line of home laundry equipment marketed through Sears Roebuck under the Kenmore name. In 1949, Whirlpool inaugurated the production of a second line of automatic washers, dryers and ironers which it markets through its own national distribution organization under the Whirlpool trademark.

It was stated that more than 400,000 square feet of manufacturing and warehousing area in the Clyde plant will permit sharp expansion of Whirlpool production schedules on its line of home laundry products as soon as government materials allocations permit. The Clyde organization has had considerable experience in the production of home laundry equipment, along with production of a diversified line of porcelain-on-steel products for the home, and is at present making porcelain-on-steel components for Whirlpool.

Present facilities of Whirlpool include plants in St. Joseph and Benton Harbor, Michigan, and in LaPorte, Indiana, with approximately 40% of all these facilities now devoted to defense materiel contract work.

FERRO PRESENTS WEAVER AWARDS, 25-YEAR SERVICE PINS

Robert A. Weaver, chairman of the board, Ferro Corporation, Cleveland, recently presented Weaver Awards to three employees for outstanding contributions to the company.

Winners were Jesse D. Walton Jr., research engineer, commended for initiative and skill in designing and constructing research equipment; Rudolph Foster, production foreman, smelting department; and Michael Ungar, Jr., production foreman, milling department. Foster and Ungar were cited for initiative and development of ideas that improved equipment and production in their departments.

Twenty-five-year service pins were also presented by C. D. Clawson, Ferro president, to four employees.

Above: C. D. Clawson presenting 25-year Ferro service pins. Left to right: Mr. Clawson; Jos. F. Janecke, mgr., new product div.; Gordon S. Lindsey, Eastern territory sales and service engr.; J. E. Hansen, mgr., Ferro Corp., Los Angeles; and F. S. Markert, Ferro executive vice pres.

Below: R. A. Weaver, presenting Weaver Awards. Left to right: Mr. Weaver, Jesse D. Walton Jr., Rudolph Foster, and Michael Ungar, Jr.

AMERICAN CENTRAL NOW "AMERICAN KITCHENS"

American Central Division of Avco Manufacturing Corp., Connersville, Indiana, has changed its name to American Kitchens Division in order to make it identical with the trade name for the products it manufactures, it was announced by F. F. Duggan, general sales manager of the division.

HAGMAN HEADS RESEARCH FOR GLOBE AMERICAN

Alden P. Chester, president, Globe American Corporation, has announced the appointment of Walter F. Hagman as head of the company's research and development department, succeeding Al Sherman who retired.

Hagman joined Globe American in 1944 as chief engineer. During the war he was engaged in engineering and production of lifeboats, life rafts and launching methods. He also designed, engineered and developed a rail rocket launcher for the Army Chemical Warfare Service.

Following the war, he had charge of engineering Globe's complete factory conversion, including new buildings. He and his staff in collaboration with Al Sherman developed new Dutch Oven range models.

INDUSTRIAL WASTE TREATMENT PLANTS ENCOURAGED

To assist and encourage industries in the construction of waste treatment plants, the Ohio River Valley Water Sanitation Commission at a meeting in Cincinnati the week of January 7 voted unanimous sup-

port for a change in the federal income-tax laws to permit a quicker write-off of costs incurred in the installation of such facilities. In so doing, the Commission endorsed the Byrnes bill (H. R. 5474) placed before the House Ways and Means Committee of the Congress.

The Commission represents eight states in the Ohio valley basin who are engaged in a regional campaign to preserve water resources through pollution abatement.

NEW COURSE IN MACHINE SHOP PRACTICE AND TOOLMAKING

A new course in Machine Shop Practice and Toolmaking is being offered by International Correspondence Schools, according to John C. Villaume, acting dean of the Scranton, Pennsylvania, institution. The course is made up of 53 lessons requiring approximately 690 hours of study.

STRELINGER SUCCEEDS MELLUM AS NASH-KELVINATOR SEC.

Horace J. Mellum retired December 31 as secretary of Nash-Kelvinator Corporation. Mellum, 75, who has been secretary of Nash-Kelvinator since its formation in January, 1937, and secretary of Nash Motors Company from August, 1916, maintains his office at the company's Nash plant in Kenosha, Wisconsin.

Godfrey Strelinger, of Detroit, treasurer of the corporation since April, 1944, was elected secretary to succeed Mellum. Strelinger also continues as treasurer of the corporation, and as secretary and treasurer of several subsidiary companies. He joined the Kelvinator Corporation in 1929 and has held executive positions with both Kelvinator and Nash.

SEEGER NAMES WOOLDRIDGE DIRECTOR OF SALES

Neil H. Griebenow, vice president of Seeger Refrigerator Company, has announced that J. M. Wooldridge is now director of sales. Wooldridge will be responsible for the coordination of sales activities of the company's products manufactured in its St. Paul division. He started with the company in 1935 as district sales manager, and later became assistant branch manager of the New York office. In January, 1947, he returned to the home office in St. Paul as division sales manager.

NAMED CHAIRMAN OF NEMA FARM, HOME FREEZER SECTION

L. C. Blunt, supervisor of advertising, refrigeration consumers relation department, International Harvester Company, has been elected chairman of the Farm and Home Freezer Section of the National Electrical Manufacturers Association.

NEW VENTILATING HOOD FITS KITCHEN CABINETS

A newly-designed kitchen ventilating hood that fits standard kitchen cabinets and fits low over the range has been introduced by Stanthony Corporation, Glendale, California. The hood is made of steel in welded, one-piece construction, and is finished in baked enamel.

INTERNATIONAL PRODUCTS FORMS FREEZER DIVISION

William Lapin, president, International Products Corporation, Los Angeles, has announced that his company has formed a home freezer division.

The firm, which manufactures a line of commercial refrigeration equipment, will market a complete line of "Uprite Freeze" units, including 10, 14, 18 and 24 cu. ft. upright models.

"We are entering the home freezer field at this time because we feel that the West Coast represents the country's greatest potential in this market. Our experience in building commercial freezers and refrigerators of all types should reflect itself in this new product," Lapin stated.

The announcement stated that Ab Waxman heads the new division with the title of general sales manager.

SERVEL BEGINS PRODUCTION OF JET FIGHTER WINGS

The first set of F-84 Thunderjet fighter plane wings recently rolled out of the new multi-million dollar wing plant at Servel, Inc., Evansville, Indiana, just nine months after ground was broken.

W. Paul Jones, Servel president, said the first production from the 120,560-square-foot plant had not been expected until a later date. Other floor space has been converted to wing production and company officials estimate a total of 350,000 square feet is now being used. When production is accelerated, the plant will employ 2500 persons.

CANADIAN CERAMIC SOCIETY 50TH MEETING, FEBRUARY 11-13

The 50th annual convention of the Canadian Ceramic Society will be held at Hotel General Brock, Niagara Falls, Ontario, February 11, 12 and 13. The Enamel Division's meeting will be held February 12.

M. D. MILLER NAMED SECRETARY OF RISAC

Myron D. Miller has been appointed as full-time secretary and safety code consultant of the Refrigeration Industry Safety Advisory Committee (RISAC), with officers at National Electrical Manufacturers Association headquarters in New York City. He succeeds the late Cyrus W. Miller.

RISAC is sponsored jointly by representative groups of manufacturers of air conditioning and refrigeration equipment, including: Air Condition-

ing & Refrigerating Machinery Association, Compressed Gas Association, National Electrical Manufacturers Association, and Refrigeration Equipment Manufacturers Association. Its purpose is to encourage the adoption of uniform safety practices and regulations with respect to refrigeration equipment, and, in particular, the nationwide acceptance of the Safety Code for Mechanical Refrigeration (ASA-B9.1-1950), sponsored by the American Society of Refrigerating Engineers and approved by the American Standards Association.

FLORA KORTZ NAMED HOME EC. HEAD BY COOLERATOR

Miss Flora Kortz has been appointed home economics director for The Coolerator Company, it was announced by G. L. Rees, vice president in charge of sales.

It was stated that Miss Kortz will be the first Mary Pennant, nominal head of the Coolerator home service department. She joined the company from Graybar Electric Company, Cincinnati, a Coolerator distributor. She also had served as home economist for the Deepfreeze Distributing Company of Cincinnati.

STEWART-WARNER DEFENSE ORDERS DOUBLE IN YEAR

Stewart-Warner Corporation plants entered the new year with rearmament orders almost twice what they were at the beginning of 1951. During the last half of 1951 the percentage of their total business which was defense business rose sharply. Of the total volume in 1951, special items for the government accounted for about 30 per cent as against approximately 10 per cent in 1950.

I-B-R HEATING SCHOOL PLANS AGGRESSIVE PROGRAM

Profiting by the experience gained in the last eighteen months, the I-B-R School of Modern Heating is planning an aggressive program of instruction during 1952.

During the year and a half since the first school was held, nearly 4,000 men have learned new and improved methods for the design, calculation, and installation of modern hot water and steam heating systems. Seventy-three schools have been held. The School has traveled more that 40,000 miles. By the end of June, 1952, there will have been 96 schools.

Further information may be obtained from The Institute of Boiler and Radiator Manufacturers, 60 East 42nd Street, New York 17, New York.

KENNARD ADDS HEATING, VENTILATING UNITS TO LINE

Kennard Corporation, St. Louis, has announced the addition of heating and ventilating units to its line of products.

According to the manufacturer, the new units answer the requirements of heating and filtering recirculated air, fresh air, mixture of both, or ventilating only. Conventionally used for heating large spaces or for central station heating, the units can also be utilized for a variety of special and process applications.

LOHMAN TO ADDRESS CENTRAL ENAMELERS FEB. 15

At the next meeting of the Central District Enamelers Club, February 15, at Hotel Allerton, Cleveland, Ohio, C. P. Lohman, of Pemco Corporation, will discuss "One Hundred and One Uses of Porcelain Enamel."

PORCELAIN ENAMEL INSTITUTE SETS ANNUAL MEETING DATE

The 21st annual meeting of the Porcelain Enamel Institute has been scheduled for October 22, 23 and 24, at The Greenbrier, White Sulphur Springs, W. Va., site of the past two PEI annual meetings. Attended yearly by over a hundred representatives of porcelain enameling firms through the country, the PEI annual meetings include discussions of vital industry problems as well as Institute business sessions.

NEW ALFRED U. EQUIPMENT CONTRACT TO HAMILTON MFG.

Contracts totaling $200,000 were recently awarded to several firms for equipping the new State College of Ceramics building at Alfred University, according to Dean John F. McMahon.

The Hamilton Manufacturing Company, Two Rivers, Wis., has been awarded contracts amounting to nearly $197,000.

The $200,000 allotment from the

Oakite service award — *J. W. Haines, technical service representative of Oakite Products, Inc., is shown receiving the new D. C. Ball Award for distinguished service from John A. Carter, Oakite president, as Frank L. Oldroyd, sales manager, looks on. The new award, in the form of a bronze plaque, will be given annually in memory of the late David C. Ball, a pioneer in industrial cleaning procedures, and founder of the company.*

It's as easy as this . . .

Another range with a PERMA-VIEW window. It is the product of Dixie Foundry Co., Inc., Cleveland, Tennessee.

PERMA-VIEW

. . . THE WINDOW YOU CAN SEE THROUGH *Always*

The easy, economical method of offering "visible baking" as a sales feature for your range is to use PERMA-VIEW oven door windows.

The strong steel encased, double pane PERMA-VIEW window incorporates the finest quality heat resisting glass. It is mechanically sealed to prevent infiltration of vapors and to keep the window "clear" permanently.

PERMA-VIEW is the fastest growing feature in the range field today. We can work with your engineering department and you can offer this feature on ***your*** range in a very short time. Call or write today.

MILLS ENGINEERING COMPANY

3683 EAST WILLIS DETROIT-7-MICHIGAN

State University of New York is for permanent laboratory equipment only, McMahon said. Under the contracts, 176 different items of equipment for the ceramic engineering, research, chemistry and design departments have been ordered. The equipment, consisting largely of tables, benches, shelves and cabinets, is slated for delivery in July or August, 1952.

Construction work on the new building is reported on schedule. All outside brick work has now been completed and workmen are concentrating on finishing the inside work by the summer of 1952. When completed, the addition to the New York State College of Ceramics will increase the facilities of the College by more than 30 per cent.

HALF-MILLION DOLLAR GAS WATER HEATER AD CAMPAIGN

"Ask *your* plumber!"

Nearly half-a-million dollars will be spent in national advertising this year by the water heater division of the gas industry to plug this theme and bring more customers to the men who sell the most automatic gas water heaters—the plumber-dealers. The half-a-million dollar budget takes into account only placements in national magazines and does not include the amount that leading manufacturers may spend on newspaper and radio advertising.

The plumber-dealer, Gas Appliance Manufacturers Association surveys show, is responsible for nearly 80 per cent of the sales of water heaters, and the new campaign—with the companion theme that "gas heats three times faster"—gives year-round backing to this important market.

83 MILLION REFRACTORY PLANT EXPANSION

Plant expansion costing 83 million dollars will be completed by the refractory industry late this year, according to NPA officials reporting in the January issue of "Brick & Clay Record."

This expansion will result in an adequate supply of refractories for the steel industry and enable it to ultimately produce 110 million tons of steel annually. 150,000 carloads of refractories will be shipped in 1952, according to the report. This exceeds by 50,000 carloads the maximum shipped during World War II when steel production was at its peak.

HOMMEL APPOINTS KIMPTON

The O. Hommel Company, Carnegie, Pa., has announced the appointment of Ralph A. Kimpton as sales and service engineer, to serve as company representative in the Michigan and Indiana territory.

Kimpton has had 16 years of experience in the enameling industry. During this time he worked in every phase of enamel plant operation, as well as production and material control.

ROBERTSHAW-FULTON ENTERS ELECTRONICS FIELD

Robertshaw-Fulton Controls Company, Greensburg, Pa., has taken the first steps in its program of entering the industrial electronic measurement and controls field, through acquisition of Fielden Instrument Corp., Philadelphia, it was announced by John A. Robertshaw, President.

Mr. Robertshaw stated that "the Fielden acquisition will enable us to offer industry many combinations of control valves and regulators with electronic instrumentation, and should enlarge our potential market." For the present, Fielden will be operated as a wholly-owned subsidiary of Robertshaw-Fulton.

CYANAMID PRESIDENT DIES

Raymond C. Gaugler, 59, president of American Cyanamid Company, died January 11, in Larchmont, N. Y.

Born in Pittsburgh, Pa., Gaugler received his education at parochial schools in that city, and at Duquesne University.

Before joining the Cyanamid organization, he was with United States Aluminum Company, New Kensington, Pa., and Northern Aluminum Company, Shawinigan Falls, Canada. Gaugler, who had been with Cyanamid since 1917, served as assistant treasurer and comptroller, and was named treasurer in 1929. In 1939, he became vice president in charge of finance; in 1947, executive vice president. He was elected president January 5, 1951, succeeding the late W. B. Bell. Gaugler had been a director of Cyanamid since 1929.

SHARPLES CHEMICALS COMBINES WITH PENNSALT

The combination of Sharples Chemicals, Inc. with Pennsylvania Salt Manufacturing Co. through an exchange of common stock has been effected, is was announced by George B. Beitzel, Pennsalt president.

For the present, Beitzel said, Sharples will continue to operate as a separate unit. "The combination of Sharples with our company," he added, "gives Pennsalt an established position in the synthetic organic chemical field—a field in which we have been increasing our activities and interest for several years."

The combination, he said, assures Sharples a supply of some of its basic raw materials, chlorine, caustic soda and ammonia, which are produced at Pennsalt's Wyandotte plant, adjacent to the Sharples plant.

PATENTS GRANTED ON GAS MAKING PROCESS

Patents No. 2,580,766 and 2,580,767 were granted January 1, by the United States Patents Office on a new process for producing high heat value gas from heavy, low-cost oils that greatly reduces the cost of manufacturing gas by public utilities. Some

Mine, Mill, and Camp...

BORON, CALIFORNIA

The Sodium Borate Ores used in the production of FERTILIZER BORATES now so widely used as essential plant foods are mined and concentrated at site pictured below.

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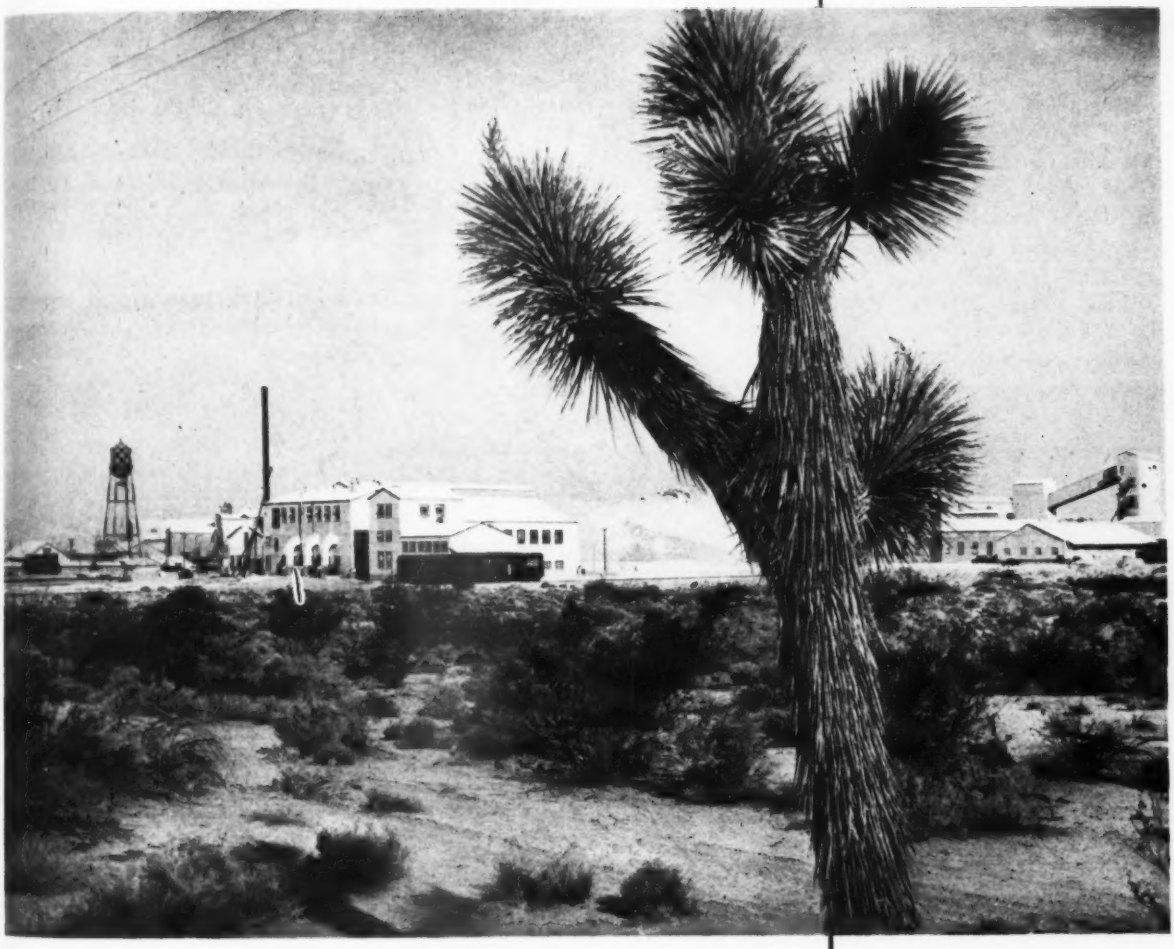

PACIFIC COAST BORAX CO.

Division of Borax Consolidated, Limited

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Agricultural Offices

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East Alton, Illinois

First National Bank Building
Auburn, Alabama

MANUFACTURERS OF THE FAMOUS "20 MULE TEAM" PACKAGE PRODUCTS

22 gas sets utilizing this new process now are in operation or are being built in the United States and two have been installed abroad. According to the American Gas Association, it is estimated that savings achieved through use of these sets will total more than $500,000 annually. The process can be used to produce some or all of the gas needed in a locality or to supplement natural gas during peak load or emergency periods.

ASSISTANT RESEARCH DIRECTOR FOR FERRO

Orville O. Kenworthy has been named assistant director of research in the central research division of Ferro Corporation, Cleveland, Dr. G. H. McIntyre, vice president and director of research, has announced.

As assistant director, Kenworthy will assist Dr. McIntyre in directing Ferro's over-all research program. He will also continue as director of chemical research, a position he has held since 1950. Ferro's central research division, organized in 1949, conducts all inter-company research and is now working on four classified research projects for the armed services.

Kenworthy, who joined Ferro in 1946, holds B.S. and M.S. degrees in chemistry from Oklahoma A & M College. He formerly associated with B. F. Drakenfeld & Co., color manufacturer.

SHERWIN-WILLIAMS RECEIVES GOVERNMENT CITATION

Special recognition has been given by the United States Government to The Sherwin-Williams Company for the role it is playing in supporting mutual American-European efforts to strengthen the free nations against communism. A "Certificate of Cooperation" bearing the red, white and blue "Strength for the Free World" shield of the Economic Cooperation Administration, and a letter of citation signed by Richard M. Bissell, Jr., acting ECA administrator, were received early in January by A. W. Steudel, president of Sherwin-Williams.

The certificate states that it is awarded in recognition of the firm's "furnishing technical assistance to the peoples of the Marshall Plan countries to aid them in maintaining individual liberty, free institutions and peace."

A Marshall Plan group (ECA), 13 paint industry specialists from France, toured Sherwin-Williams' Cleveland plant last fall, studying production facilities, quality control, personnel relations, research and merchandising methods.

NEW GLIDDEN REGIONAL HEAD

The appointment of Paul C. Brockman as regional director of The Glidden Company's Adams and Elting Division in Chicago, was announced by A. D. Duncan, vice president in charge of the paint and varnish division.

Brockman, who has been sales manager of the Adams and Elting Division, succeeds Herman F. Winger, recently promoted to the position of regional director of Glidden's Reading (Pa.) Division.

SHARON STEEL CONSOLIDATES

Sharon Steel Corporation has announced the liquidation into the parent company of its subsidiaries, The Niles Rolling Mill Company, Brainard Steel Company, and the warehouses of Sharonsteel Products Company.

The change was made to simplify the corporate structure of the company, and will involve no changes in personnel or management policies. The subsidiaries will be operated as separate company divisions.

ECA CITES GERITY-MICHIGAN

Special recognition has been given by the United States Government to Gerity-Michigan Corporation, Adrian, Mich., for the role it is playing in supporting mutual American-European efforts to strengthen the free nations against communism.

A "Certificate of Cooperation," bearing the red, white and blue "Strength for the Free World" shield

Technical personnel *— of American-Marietta Company are shown in front of the research laboratory of The Arco Company, Cleveland, at the beginning of a company-wide meeting. The meeting is one of a yearly series conducted by American-Marietta and held at the plant of a different affiliate each year. Left to right in photo: D. E. Eichelberger, Sewall Paint & Varnish; R. L. Oughton, American-Marietta; Dr. E. W. Scripture Jr., Master Builders; E. Spoerry Jr., Arco; R. L. Pflaumer, American-Marietta; Kenneth Clark, president of Arco; W. C. Jeppson, Charles R. Long Co.; R. L. Hemingway, president of American-Marietta; Dr. D. M. Gans, director of research, Arco.*

THE LONG AUGUST NIGHT WAS HOT—but not as hot as the bitter fighting that raged about Agok, Korea, in the Naktong River area. Sergeant Kouma, serving as tank commander, was covering the withdrawal of infantry units from the front. Discovering that his tank was the only obstacle in the path of an enemy breakthrough, Sergeant Kouma waged a furious

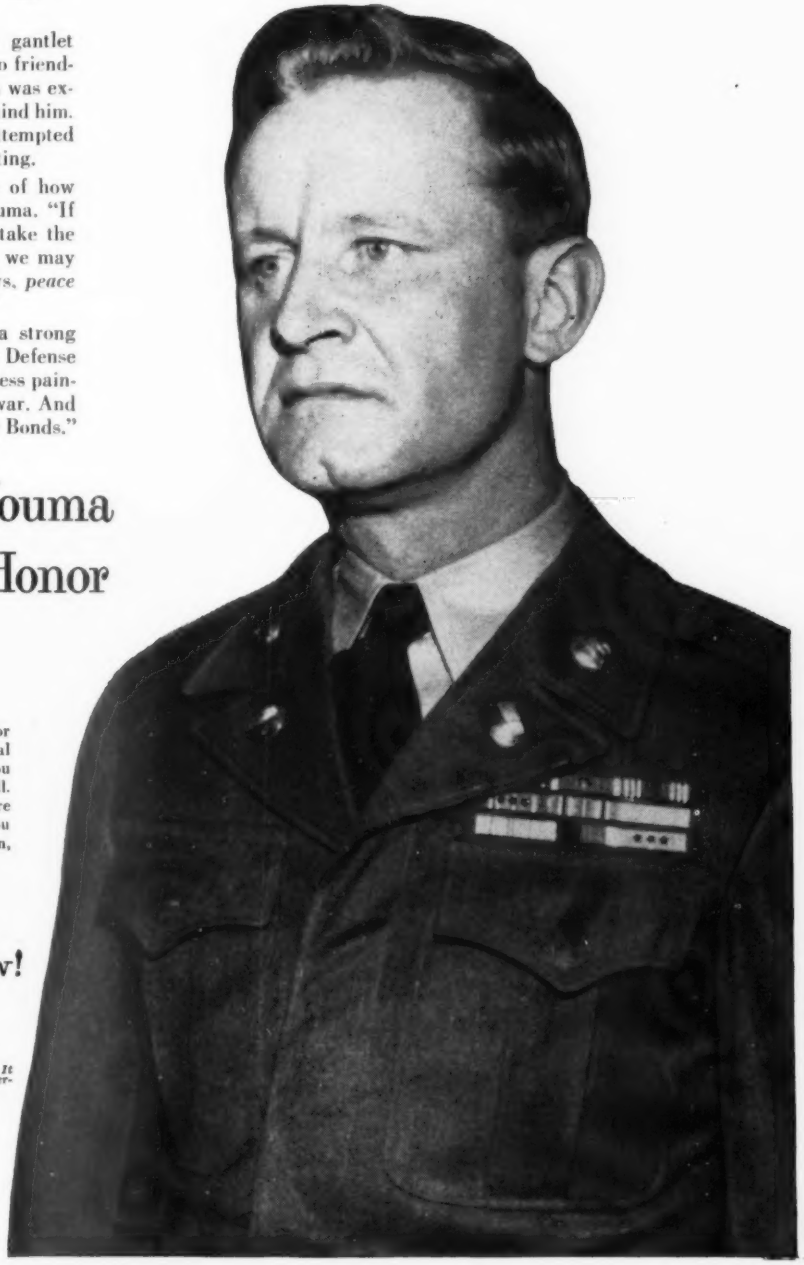
nine-hour battle, running an eight-mile gantlet through enemy lines. He finally withdrew to friendly lines, but not until after his ammunition was exhausted and he had left 250 enemy dead behind him. Even then, although wounded twice, he attempted to resupply his tank and return to the fighting.

"A withdrawing action is not my idea of how Americans should fight," says Ernest Kouma. "If we must fight, let's be strong enough to take the offensive. In fact, *if we're strong enough*, we may not have to fight at all. Because, nowadays, *peace is for the strong.*

"So let's build our strength—to keep a strong America at peace. You can help by buying Defense Bonds—as many as you can afford. It's far less painful to build for peace than to destroy in war. And *peace* is what you're building when you buy Bonds."

M/Sgt. Ernest R. Kouma

Medal of Honor



Remember that when you're buying bonds for national defense, you're also building a personal reserve of cash savings. Remember, too, that if you don't save regularly, you generally don't save at all. So sign up today in the Payroll Savings Plan where you work, or the Bond-A-Month Plan where you bank. For your country's security, and your own, buy United States Defense Bonds now!

Peace is for the strong... Buy U. S. Defense Bonds now!

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of the Economic Cooperation Administration, and a letter of citation signed by Acting ECA Administrator Richard M. Bissell, Jr., were received by James Gerity, Jr., president of the company.

The certificate states that it is awarded in recognition of the firm's "furnishing technical assistance to the peoples of the Marshall Plan countries to aid them in maintaining individual liberty, free institutions and peace."

ARMOUR RESEARCH APPT.

James E. Young has been named an associate ceramic engineer in the ceramics and minerals research department at Armour Research Foundation of Illinois Institute of Technology. The appointment was announced by Dr. Einar P. Flint, department chairman.

Young was a ceramic engineer for Republic Steel Corp., Cleveland, from 1948-49. He was also previously employed by Inland Steel Co., Youngstown Sheet and Tube Co., East Chicago, Ind., and Republic Steel, Chicago.

ALCOA RESEARCH DIRECTOR

Dr. Kent R. Van Horn, one of the nation's leading research metallurgists and an authority on industrial X-ray, has been named director of research for Aluminum Company of America. A veteran of 22 years with Alcoa, Dr. Van Horn advanced from the position of associate research director to succeed Dr. Francis C. Frary, who retired.

NEW DETREX PHOSPHATE PRODUCTS MANAGER

Alan H. Harris has been appointed products manager of the phosphate coating division for Detrex Corporation, Detroit, according to an announcement by W. F. Newbery, director of sales.

Harris holds degrees in both chemical and metallurgical engineering, and as phosphate products manager, will be in charge of the application of all Detrex phosphate coating materials, including a compound used in the cold-forming and extruding of metals, and materials for metal rust protection and paint bonding.

BRILEY NAMED FIBERGLAS V. P.

Election of John Marshall Briley as a vice president of Owens-Corning Fiberglas Corporation has been announced by Harold Boeschenstein, Fiberglas president.

Briley was recently with the New York law firm of Shearman & Sterling & Wright, of which he has been a partner since 1940. His headquarters will be in the Fiberglas general offices in Toledo, where he will assume general executive responsibilities, including relationships with foreign and domestic licensees, direction of certain development projects, and formulation of corporate policies.

N. W. CHEMICAL NAMES WESTERN N. Y. REP.

The appointment of Harry Amedro as Syracuse and Western New York representative has been announced by H. J. McCracken, president of Northwest Chemical Company, Detroit.

PHOTOLAY —a new sales-making idea for you!

Give your product the "different" touch of distinctive beauty that will open your customers' pocketbooks.

Light up and dramatize escutcheon plates, nameplates, indicator plates, clock faces, or any feature of your product you wish to beautify. Create distinctive point-of-sale signs, edge-lighted for strong merchandising appeal.

How? By a new Corning process called Photolay. Now your name, your trademark, or any design you choose can be easily and simply laid in beautiful, deep, three-dimensional white on panels of clear glass. Backed up with any of a wide assortment of colors and lighted directly, indirectly, or on edge, the design stands out in brilliant eye-catching contrast.

No expensive tool costs are involved. Your own design, even a photograph if you choose, is photographically fixed, developed, and fired into the clear glass throughout its full depth for lifetime permanence.

WHAT'S THIS IDEA BOX? It's the Photolay demonstrator. It's full of ideas that will give your product new sales punch. It shows you better than words can describe exactly what Photolay means as a merchandising, sales-creating feature for your product. Let us bring this box to you and demonstrate the variety of effects you can achieve with Photolay. Just write today, or phone Appliance Parts Department.

PYREX

CORNING GLASS WORKS, CORNING, NEW YORK

Corning means research in Glass

VISIT THE NEW CORNING GLASS CENTER

PYREX brand Oven Windows · VYCOR brand Burner Plates · Oven Lightingware
PYREX brand Plate Glass · Range Top Lightingware · Other Range Specialties

Amedro attended Syracuse University where he majored in chemistry while employed at Allied Chemical and Dye Corporation in their Works Laboratory. His further experience included covering New York plus parts of Pennsylvania for The DuBois Company, of Cincinnati.

SHARON STEEL ELEVATES 3 MEN

Sharon Steel Corporation has announced the elevation of Thomas J. Moore, Jr., to the post of general manager of the Brainard Steel Division, Warren, Ohio. Moore was vice president of Brainard before the recent designation of Sharon Steel's subsidiaries as operating divisions. E. T. Sproull, formerly president of Brainard, will serve as chairman of the management committee, and William J. Keegan, formerly secretary and treasurer, is now assistant general manager.

Moore has been with Brainard since 1950, and previously with Sharonsteel Products Company as vice president. He also served from 1946 through 1948 in the sales department of Mullins Manufacturing Corporation, Salem. Sproull, who has been active in the steel industry for over 40 years, was president and principal stockholder of Brainard from 1931. Keegan, who joined Brainard in 1950 as secretary and treasurer, was formerly controller of the National Enameling and Stamping Company.

LITHIUM CORP. ANNOUNCES EXPANSION PROGRAM

A $245,000 overall plant expansion program has been announced by Lithium Corporation of America, Inc. First step in the two-phase program is construction of a $250,000 new type flotation mill for recovering spodumene concentrates from ore deposits in South Dakota. The mill is expected to begin production this year.

Second phase of the program is enlarging existing facilities of the company's Metalloy Corporation Division plant in Minneapolis for increasing production of lithium metal and lithium compounds. The cost will exceed $175,000. The expansion was made necessary by the greatly accelerated demand for lithium by industry, according to company spokesmen.

FLOYD-WELLS APPOINTMENT

Appointment of Maynard D. Young, Manchester, N.H., as sales representative for the Maine, New Hampshire and Vermont territory has been announced by J. W. Goddard, sales manager for The Floyd-Wells Co., manufacturer of Bengal ranges.

Young was formerly associated with Round Oak Stove Co., Dowagiac, Mich., as sales representative for that company in the same area of New England.

CONFORMING MATRIX NAMES FABER AND SCHIMMEL

Conforming Matrix Corporation, Toledo, has announced the appointments of Elmer L. Faber as plant superintendent and head of the engin-

to Page 85 →

PEEL OVERSPRAY WITH VINCOTE

Use quick-easy-peeling VINCOTE to protect booth walls against paint overspray—and you eliminate slow, messy, clean-up trouble and fire hazard.

VINCOTE is a vinyl-type liquid which forms a tough plastic film when sprayed on booth walls. To clean booth, VINCOTE and paint overspray is peeled off in large sheets, quickly and easily. As a result, booth is back in productive use faster, and cleaning costs are much lower

Write for full information.

DETREX
BOX 501, DETROIT 32, MICH. Corporation

Tool plastic glass cloth lay-up mold for fabricating a complex glass cloth cover panel. Use of plastics for this type of mold results in a smooth and superior surface on the plastic-impregnated glass cloth part.

Plastic tooling . . .

→ *from Page 24*

framework. All plaster patterns produced at Northrop are force-dried at 130°F. to eliminate all moisture. Moisture remaining in the pattern will result in a soft surface on the plastic tool and a generally poor casting.

After the plaster pattern is dry, it is sprayed with two coats of lacquer-base sealer with a light sanding following each coat. Next, several coats of lacquer-base sealer are applied until all surface irregularities are filled. After the sealer is dry, a final coating of simonize-type wax is rubbed on with cheesecloth. This wax serves as a parting compound, and must be applied as smoothly as possible. Any irregularity in the final waxed surface will be faithfully reproduced in the plastic casting.

Sometimes a master or sample part is used as a pattern. To prepare such a master or sample for use, it must first be thoroughly degreased, then sprayed with two coats Tygon TP-81 paint. This paint must be applied carefully as it cannot be sanded and serves as a parting compound. Any number of tool castings may be produced from such a master or sample part, but the part must be carefully cleaned and sprayed with Tygon paint prior to each cast.

In some cases, where an intermediate number of tool castings are required, the pattern is made of the tool plastic itself. A plaster pattern is made first as already described, then a splash cast is taken from this plaster pattern. Gypsum cement is used for the splash following the usual techniques. The plastic pattern is then taken from the splash. The plastic pattern is then given a high buff finish and coated with wax. This wax coating must be very carefully and thoroughly applied as it serves as the only parting compound, and any contact between the liquid cast plastic and plastic pattern will result in firm bonding together. This makes removal of the finished casting difficult if not impossible.

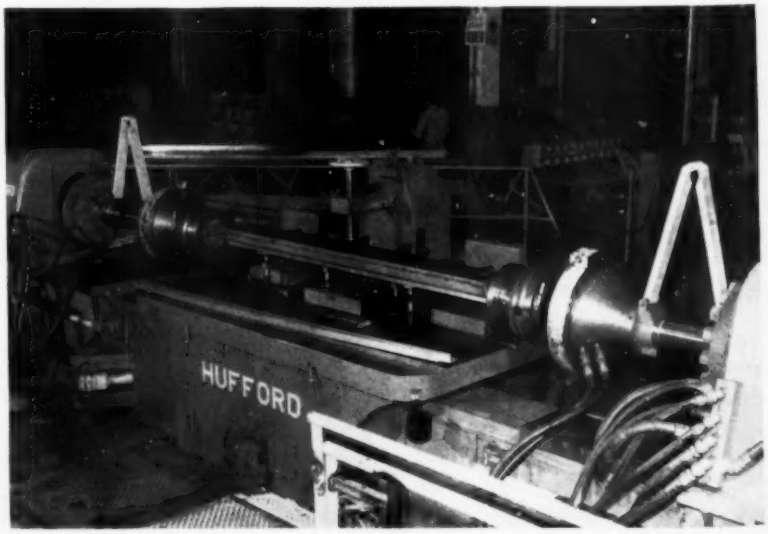
Tool plastics are composed of three ingredients which must be mixed together just prior to use. These are the resin, catalyst and stabilizer. Mixing proportions are provided by the supplier and must be held to very close tolerances to secure the optimum chemical reaction during setting and curing of the plastic.

At Northrop, the ingredients are measured by weight. The resin is placed first in the mixing pot, then the catalyst is slowly added and mixed thoroughly until the color of the material has become consistent. The stabilizer is then added and mixed by hand until all the materials are wetted. The mixer is then started and run slowly until a homogeneous blend is obtained, then mixer speed is increased slightly for about two minutes. After shut-down, the material is left in the mixer for a few minutes so that entrapped air bubbles will rise to the surface. A small vibrator attached to the mixer speeds this action. When the air bubbles have stopped rising, the material is ready to pour.

Only the amount of plastic immediately required is mixed at one time. This is calculated by dividing the volumetric weight of the plastic into the volume of the tool to be cast. Most tool plastics run from 20 to 22 cubic inches to the pound.

The plastic must be poured slowly into the mold to avoid the formation of air bubbles. Direct the pouring

Plastic-faced stretch form block mounted on a Hufford A15 press. An aluminum base plate was used in casting this tool. The tool plastics can be used in almost any tooling application where compression loading is involved.



stream against the wall of the gate or mold. Only one gate should be used, located in the lowest part of the mold, with a riser opposite at the highest point in the mold. In pouring long, thin tools, the riser end of the mold should be raised slightly, then lowered slowly as pouring progresses. This provides additional head pressure as the liquid plastic fills out the contours of the mold. All trapped air areas in the mold must be properly vented. Some castings are cured immediately after pouring; others are allowed to set at room temperature before curing is accomplished. The latter method will aid in permitting air bubbles to escape, thus minimizing the danger of a porous casting.

Coring the pattern

It is not always necessary to make the tool a solid tool plastic structure. With many of the larger tools, a core may be used to occupy space that otherwise would be filled by the plastic. Cores may be constructed of any conventional coring material, though a new development utilizing a plastic material with a foaming agent is finding favor in the Northrop shops. The foaming agent causes the plastic core material to swell to about five times its original volume, thus reducing weight and saving material while at the same time fulfilling its objective of consuming space. This highly porous core material also serves to reduce the weight of the finished tool. While coring is an economical advantage, it should not be carried to the point where it interferes with tool strength.

Curing

Most tool plastics are cured at temperatures around 200°F. Whatever the specified curing temperature happens to be, it should be maintained within ± 5°F. Curing time depends upon the size and configuration of the casting. Castings under 500 pounds will usually cure in about 12 hours, while larger castings may require up to 24 hours.

P. L. Venable, supervisor of Northrop's pattern shop and foundry, voices a warning on curing procedures. "A casting *must not* be removed from the oven until it is completely cured," he says. "Undercuring will result in a soft and inferior casting. And castings must not be removed from the mold until they are cool. They should be covered with a blanket or tarpaulin immediately after removal from the oven to prevent local chilling of air-exposed surfaces which might cause some warpage."

Machining plastics

While many plastic tools, unlike metal tools, will be ready for use immediately after curing and cooling, some may require additional machine work to fit them to various shop applications. The tool plastics can be readily machined provided the proper techniques and set-ups are used.

When plastics are worked in a lathe, the tool bit should have a 1° negative rake and approximately 10° clearance angle. Set of the bit should be about 1° above lathe center to avoid chatter. In drilling plastics, the drills should be ground to 1° negative rake and 10° clearance. Drill presses should operate from 500 to 5000 rpm, with the higher speeds usesd for smaller diameters and deeper holes.

Carbide cutters can be used to mill tool plastics, and should be set and run according to their manufacturer's directions for milling plastics. Band saws for plastics should have from 8 to 10 teeth per inch, and circular saws 6 teeth per inch. Both types should run at from 1000 to 1300 feet per minute surface speed.

As plastic chips are somewhat corrosive, all shop tools should be cleaned immediately after use.

Repair and alteration

One great advantage of plastic tooling is the ease with which it can be repaired, or altered in contour to conform to design changes in specific parts. The surface to be repaired or altered is first roughed by sanding. A mold or dam is then built around the affected area and filled with liquid plastic. This liquid plastic will bond full strength with the solid plastic of the tool as it sets and cures. Curing may be accomplished by inserting the entire tool in the oven, or by using a bank of infra-red lamps to apply heat locally. When the added material has set, it can be machined or contoured by grinding as already described.

The success of plastic tooling at Northrop, and the rush of work that has descended upon the tooling shops, has led to some emergency innovations that promise to become standard practice. Some of the plastic tools being produced are too large to fit in available curing oven space. To overcome this difficulty, a large, portable infra-red lamp bank has been constructed and placed in use. Hundreds of infra-red lamps are installed in a strong metal frame that can be hoisted by overhead crane and transported to any part of the shop. The lamp bank is then lowered in close proximity to the tool, insulation is placed around the tool, and curing proceeds in an efficient and proper manner. This portable bank is also used for curing tools too heavy to move after they have been poured and while the plastic is still in a liquid state.

Summary

American industry in general needs no introduction to tooling problems. Tooling is one of the most costly investments in any new product. In certain cases, with complicated products, tooling may require many months after the prototype product has proved its value. This is particularly true in the aircraft industry, and in many shops now subcontracting aircraft work. During World War II and currently, tooling is a major bottleneck to military production demands.

Tool plastics are the one bright spot in the entire picture. They have proved their versatility and usefulness beyond any doubt. In many applications, they have advantages vastly superior to metal tools. They are not difficult to work with, and are in ready supply. Worthwhile economies in tool production can be realized by their use. They can be used to release more critical metals for other production requirements.

These reasons are sufficient to induce any company faced with tooling problems to give plastics serious and studied consideration.

Editor's mail → *from Page 10*

paint and plating equipment. In addition we are investigating new painting processes.

Your December issue contained several articles on the above which were of interest to us. In view of this, we are desirous of obtaining your publication periodically, and would appreciate your sending us a subscription form.

Charles Sliva
Plant Engineering
Pittsfield Ordnance Mfg. Div.
General Electric Company
Pittsfield, Massachusetts

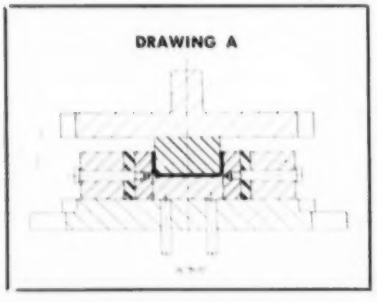
***Finish* goes to key personnel at all other General Electric manufacturing plants, and the *ordnance* plant will most certainly be added to our reader list.**

the upside down of it

Gentlemen:

Kindly refer to Page 22 "DRAWING A". We should like to advise you that this die as shown is reversed (upside down) — see sketch attached. I am sure you desire to acknowledge a correction of this in the February issue of *finish*. It is not our intention to be critical; however, this is a definite mistake. The balance of the article is excellent, and you warrant compliments.

James L. Kemp
Director of Education
Acme School of Die
Design Engineering
South Bend, Indiana



production department faces at *finish* are red. While plant men and tooling experts who read the excellent article "The Effect of Mill Tolerances on the Finished Sheet Metal Stamping" by Stanley R. Cope, in January *finish*, would immediately recognize the drawing as "upside down", we just don't like such errors at *finish*. We reproduce the drawing here as it should be — *finish* production department, please note!!!

taking cognizance of job stampers

Gentlemen:

May we have an extra copy of your January 1952 issue?

Incidentally, we like your magazine, and consider it a worthwhile contribution to the industry. With due respect for the advanced techniques developed by the larger manufacturers, we would recommend greater cognizance of the "job stampers".

Philip P. Kaiser
P-K Tool & Mfg. Co.
Chicago, Illinois

our editorial efforts are designed to benefit *all* producers of fabricated metal products, with special attention devoted to appliance manufacturers. The job stampers are definitely within this scope, and we welcome all suggestions and ideas that may prove helpful to this important group.

high temperature ceramic coatings

Gentlemen:

I have just read with a great deal of interest your defense production feature entitled "Ceramic Coatings Make the Big Time in the Aircraft Field", and "Ceramic Coatings for the Hot Spots". . . .

It would be very much appreciated if you would send me a few reprints of the articles mentioned in November *finish*, and any other reprints you may have from previous issues on this subject.

Richard P. Harner
Abolite Lighting Division
The Jones Metal Products Co.
West Lafayette, Ohio

other readers interested in early articles on high temperature ceramic coatings for metals may find important material in the following back issues of *finish*: December, 1946; February, 1947; April, 1950; January, October, November, 1951.

Seven barrels bright hone or deburr 110 different parts

→ *from Page 29*

lb. of No. 4A limestone chips and three and one-half pounds of 100 compound for one hour. This is followed, after flushing out the compound and adding three and one-half pounds of No. 203 compound, by a three-hour bright honing.

For higher luster parts

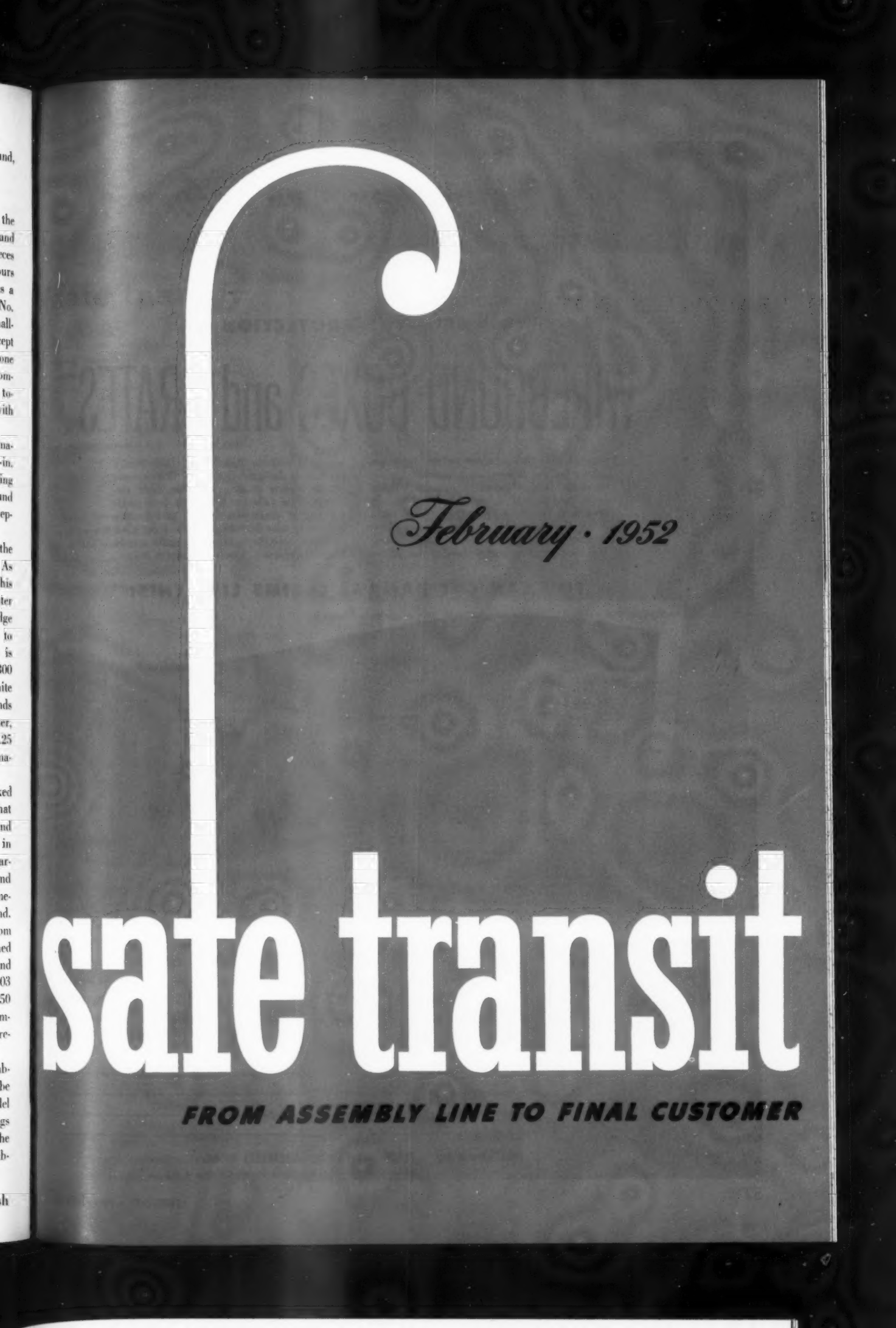
To provide a still higher luster, the larger parts are separated out and washed, after which 12,000 pieces are burnished one and one-half hours in a No. 45 barrel containing, as a medium, only three pounds of No. 355 compound and water. The smaller parts are similarly treated except that the deburring requires only one hour. When this processing is completed, pairs of parts are pressed together and are ready for plating with gold or rhodium.

Some other small brass screw machine parts are tumbled in 22x35-in. barrels for only 15 minutes, using only water and No. 355 compound to bring up a bright luster, as a preparation for plating.

Among other parts processed is the brass diaphragm washer, (I). As produced on a screw machine, this part has a large radius on one outer edge but is square on the other edge which formerly was machined to "break" the square corner. This is now done by tumbling loads of 800 pieces in 700 lb. of No. 3A granite chips and three and one-half pounds of No. 100 compound, plus water, for 24 hours. This saves about $1.25 per 100 pieces over the extra machining operation.

Knurled rings like those marked (J) are screw machine products that were formerly wheel-polished and buffed. They are now processed in lots of 1500 pieces in 22x35-in. barrels using 700 lb. of mixed 4B and 5A limestone chips and three and one-half pounds of No. 100 compound. After flushing and separating from the chips, the parts are bright honed for three hours using only water and three and one-half pounds of No. 203 compound. This saves about $1.50 per 100 parts and represents an important total saving, as yearly requirements are large.

Many more examples of wet tumbling practice in this plant might be cited but they more or less parallel those already given. Total savings are substantial and amply justify the investment in the equipment described.


February · 1952
sate transit
FROM ASSEMBLY LINE TO FINAL CUSTOMER

Now, more than ever before...

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WIREBOUND BOXES and CRATES

Losses due to container failure have no place in an industrial economy facing material allocations and shortages. That's why you should investigate *Wirebounds* —which combine the strength of steel with thinner wood to bring you *better product protection at lower cost.* Three hundred graduate engineers of the Wirebound Institute have been technically trained to design tailor-made *Wirebounds* which assure damage-free product delivery. The value of this container engineering is clearly demonstrated in the following case histories. We will be glad to show you how these benefits apply to *your* product. Use the coupon below.

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Flexible power saw maker reduced shipping weight from 820 to 775 pounds, cut crating time 30%. Company stacks and handles units four high. Shipping damage due to container failure has been completely eliminated.

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☐ Send me general information . . . complete descriptive book titled "What to Expect from Wirebounds."

☐ Send me specific information . . . tear sheets of case histories of packing products similar to mine.

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STREET AND NUMBER _____

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Room 1154—327 South LaSalle Street, Chicago 4, Illinois

safe transit

A monthly trade publication section devoted to improved packaging and shipping and materials handling practices in the home appliance and allied metal products field.

Plant experience information for all executives and plant men interested in the problem of packaging and shipping improvement and loss prevention.

Complete information on the National Safe Transit pre-shipment testing program for packaged finished products, and detailed progress reports of divisions and sub-committees of the National Safe Transit Committee.

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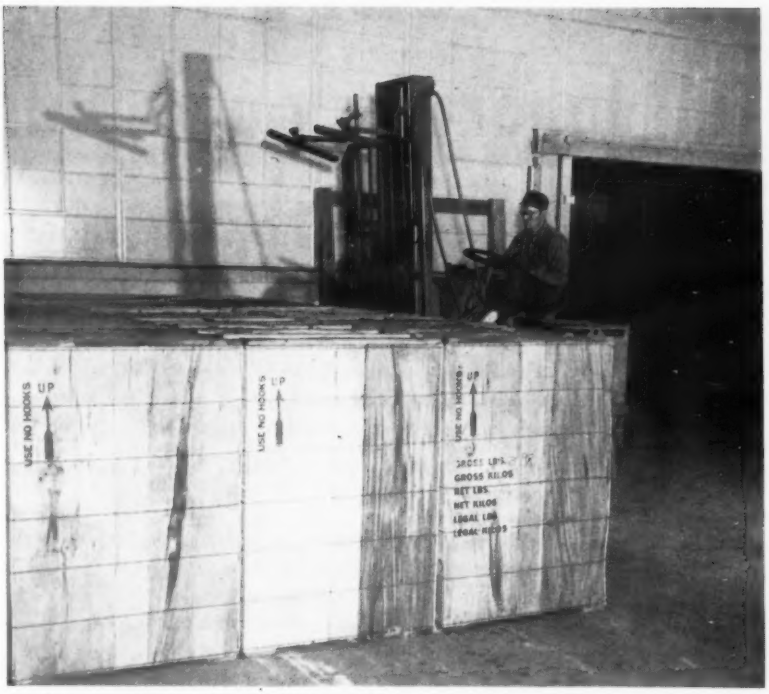

Export crates *— for Maytag automatic washers are designed for ease of handling with fork lift trucks.*

Last operation *— on the packaging line for Maytag automatic washers is the application of the "Safe Transit" Label indicating certification by the National Safe Transit Committee of the company's pre-shipment testing procedures (see story on Page ST-9).*

Combine EXPERIENCE with full laboratory and plant facilities...

the result: SATISFIED CUSTOMERS

• Blanketing the United States, the Container Division of Atlas Plywood Corporation is composed of 12 manufacturing plants, 8 distributing plants and 10 sales-service offices.
In Lawrence, Mass.—for the past 22 years—we have maintained and operated what is probably the most complete Container Laboratory in this country.

This combination of laboratory and plant facilities has three separate meanings for those who use Atlas Plywood Containers.

When a new container is needed, the laboratory facilities are available for both designing and testing—in terms of stress, strain, durability, size, weight and cost . . . The wide-spread plant facilities then mean prompt service in any quantity and on any schedule—together with minimum delivery costs. . . . Then, once again, the laboratory comes into operation—in the periodic screening and testing of selected samples of all containers made for each customer in any of our plants.

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Houlton, Me.	Grayling, Mich.
Patten, Me.	Rhinelander, Wisc.

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CONTAINER

ATLAS

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ADS OUT___

The importance of performance tests

reporting the work of the ASTM committee on performance tests

by Earl R. Stivers • PACKAGE RESEARCH LABORATORY, ROCKAWAY, NEW JERSEY

BOTH the Technical Association of the Pulp and Paper Industry (TAPPI) and the American Society for Testing Materials (ASTM) have adopted several standard test methods for shipping containers.

These cover tests in the revolving drum, in the drop apparatus, on the incline impact device, in the compression machine, and on the vibrating table. There are also tentative methods of test for water-vapor permeability, water resistance by the spray method, and for large shipping cases and crates.

Function of committee

The function of the ASTM Performance Standards Committee is to set up the means of predicting the serviceability of a shipping container when subjected to one or more of the standard tests. This is a complex task. In the revolving drum test, for example, different types of boxes slide at different rates of speed, and boxes of different shapes and depths receive falls of different severity. In addition, the same standard would not apply for widely different types of commodities such as hardware and glassware. Furthermore, the expected kinds of handling vitally affect the performance standards.

The Committee has attempted to solve this complicated problem by reducing it to a series of component parts. It was readily recognized that packages of different weights receive different kinds of handlings. Therefore, the first action of the Committee was to adopt weight categories which reflect these differences. The brackets approved were:

From 0 to 50 lbs.—one man throwing
Over 50 to 90 lbs.—one man lifting
Over 90 to 200 lbs.—two men lifting
Over 200 to 500 lbs.—manual handling with equipment
Over 500 to 1000 lbs.—handling with power equipment
Over 1000 lbs.—handling with special equipment

The next obvious differentials cover types of handling. Those accepted are:

Domestic—car, truck or plane load
Domestic—less than car, truck or plane load
Export—commercial
Military

The purpose in establishing these 6 weight categories and 4 types of handling was to classify known hazards not related to the particular commodity or package. Thus, if in the future, the sevrity of handling for the several weight brackets could be established, for example, as 5-4-3-2-1-1, and that for the types of handling 1-2-4-8, only one level of performance need be determined for each type of test and for each particular commodity. The other levels could then be determined by simple arithmetic.

Safe Transit Program—an example of wide scale usage of performance standards

At this time, the most successful use of performance standards on a wide scale is by those companies participating in the *National Safe Transit Program*. This program recognizes impacts, drops and vibration as a prime source of damage for porcelain enamelware (and other metal products), and sets standards for preshipment testing of packaged articles. These standards were determined from a study of actual shipments by rail, truck and plane. An impact register was used to indicate the severity of handling, and the standards are based on the use of such a register. The Performance Standards Committee is studying the results of these tests with the idea of adopting them if they are found to be correct.

Performance standards necessary

Performance standards are not only practical, but are vitally necessary. Various laboratories have been using them for years. It remains only to reconcile the experience of these many laboratories and individual companies. That, however, is still quite an undertaking when all the various test methods and types of commodities are considered.

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For Domestic or Export
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Our designing and testing laboratory, supervised by experienced engineers, can assist you with your packing problems, and is at your service without obligation.

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Materials handling, inspection, packaging and shipping at Maytag

by R. H. Thompson • GENERAL TRAFFIC MANAGER, THE MAYTAG COMPANY, NEWTON, IOWA

Exclusive feature finish

More than two miles of conveyor lines at our Plant No. 2 play an important part in the material handling system at that multi-million dollar installation. In addition, 17 electric fork trucks ranging from 1,000 to 12,000 pounds lift capacity, 15 fork hand-transport mechanized trucks and a 15,000 pound overhead crane facilitate the movement of incoming materials from storage to the processing departments in the Maytag automatic washer factory.

The sprawling plant, covering 54 acres with 453,000 square feet of floor space, was designed to handle all manufacturing operations on one floor through the use of an extensive conveyor system and the electric trucks. A 750-foot railroad spur runs along inside the east and west sides of the building. Incoming materials are received on the west track in gondola and boxcars. About 80% of the steel used in Maytag automatic washer fabrication is received in railroad cars. The balance is delivered by truck at the truck docks on the same side of the factory.

Non-metal supplies such as agitators, shipping cartons, lumber for the base, and the balance of materials

Above: Final inspection — the entire wiring system of the washer is checked with volt-meters and watt-meters. Water lines are checked by water pressure and air pressure. Then the washer goes through one more cycle of washing, and if its performance is perfect, it is crated.

are received in railroad cars. Smaller parts are trucked in by the suppliers. These parts are stored on pallet racks, cargo-tainers, floor stacks and coil racks.

A convenient receiving truck dock located at the north end of the building just ahead of the railroad spur can handle 16 trucks at one time. The recessed docks are located inside the building and facilitate the unloading of materials for production.

Handling 362,000 pounds of incoming materials daily

Materials flow from the receiving area on the west side of the building across the factory east through the various processing departments such as die-casting, machining, sheet metal, paint and porcelain enamel, and metal treating. According to the production department, approximately 362,000 pounds of materials are handled daily from the receiving section at Plant No. 2.

Shipping base assembled early on the line

As the component parts of the Maytag automatic washer reach the north-south assembly line along the east side of the factory, the automatic machine begins to take shape. The shipping base is assembled early on the line and travels through the balance of assembly on a floor conveyor. Carton materials are supplied to The Maytag Company completely palletized, and, wherever possible, the cartons are unloaded to the assembly line from boxcar by fork trucks, saving all extra handling. Formerly the unloading process required 14 man-hours. Now the unloading operation uses one man and one fork truck to complete the job in two hours.

Top: First crating operation consists of bolting wooden platform to base of the upside-down automatic.

Center: Mechanical "up-ender" holds machine while worker blocks machine parts and securely ties motor.

Left: Showing various conveyor line steps in packaging automatic washers.

Plant No. 2 conveyors total 14,267 ft.

Monorail Conveyors	
Pickle conveyor	467 ft.
Paint conveyor (prime coat)	3167 ft.
Paint conveyor (top coat)	956 ft.
Porcelain transfer conveyor (raw material line)	364 ft.
Ground coat line	676 ft.
Cover coat line	457 ft.
Porcelain burning line	367 ft.
Assembly delivery line (transportation)	1553 ft.
Overnight storage conveyor	412 ft.
Wash conveyor	1924 ft.
Dry coat conveyor	140 ft.
Balancing ring dip conveyor	640 ft.
Sheet metal shapes conveyor	810 ft.
Total length of monorail conveyors	11,933 ft.
The following dimensions were measured from two-dimension layout of Plant 2.	
Power roller conveyors	702 ft.
Belt conveyors	237 ft.
Slat conveyors	86 ft.
Motor conveyor	19 ft.
Gravity roller conveyors	1,290 ft.
GRAND TOTAL	14,267 ft.

A general inspection of the automatic washer is made just prior to crating. Previous to this all functional tests such as a check on the final cycle, wash cycle and wattage are made on an adjacent test line.

Assembly line packaging

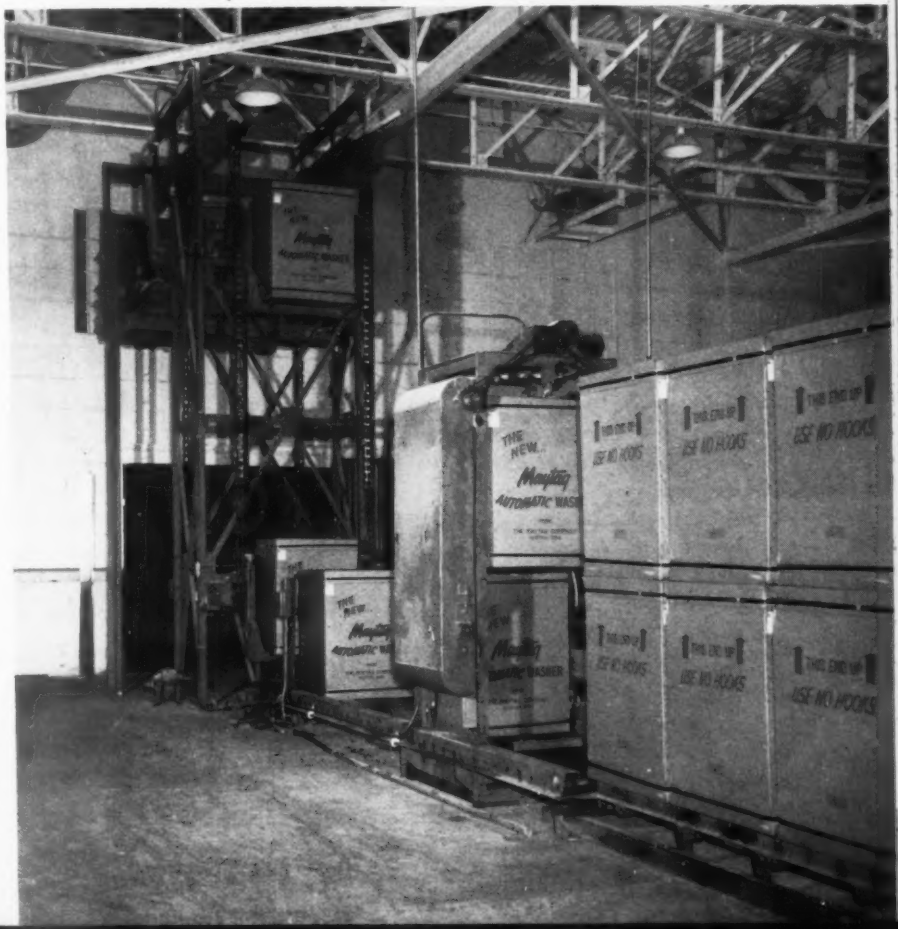
To insure the best arrival possible of Maytag appliances to their chosen destinations, The Maytag Company spends thousands of dollars annually on crating procedures. New methods are constantly being sought to improve these procedures and to guarantee machines to be in good condition when delivered into the hands of dealers throughout the country.

First step in crating the Maytag automatic calls for lifting the machine by the shipping base and inserting a paper carton cap on the underside. The internal packaging is next attended to, and the washer accessories are packed inside the machine. These include the drain hose, hot and cold inlet hose, name panel, drain bar and pilot lamp. At this time, the serial number is attached to the machine and a four-section shipping tag, which includes the serial number, model, etc., is placed under the lid of the machine. The inner-support packaging is also added at this stage to hold the inner-tub

Above: The end of the packaging conveyor line showing the lift conveyor spanning the indoor railroad spur.

finishfotos

Below: On warehouse side of lift conveyor, a stacking machine automatically doubledecks packaged washers for easy handling.



Showing the final strapping operation in connection with the car-loading of Maytag automatic washers.

assembly together during shipping.

As the machine moves along, a carton is then assembled by unfolding the outside carton and inserting the inner-liner. A pad is placed on top of the machine. A wire strap is then placed around the upper portion of the carton and clamped. At this particular stage of packaging, the worker stands on a three-foot platform and drops the paper carton over the top of the machine as it passes by on a conveyor. The washer is running along at floor level. After the carton is placed on the machine, the washer moves up an incline belt at three feet above floor level where a worker secures the carton to the lower cap and straps the carton to the cap.

When the carton is assembled, the four-section tag is removed from the lid and placed under the top cap where it is exposed to the outside. As the carton is strapped to the bottom cap, the operator removes the four-section tag from the cap and staples it to the side of the machine, removing the lower section for retention for departmental records of machines produced.

Lift conveyor spans inside railroad spur

Now the Maytag automatic washer is ready for shipment to the American housewife, and it moves east along a conveyor to a rail siding where the crated machine is elevated 20 feet on a lift conveyor 30 feet over a railroad track on the east side of the building, and back down into the warehouse.

As the crated automatic washer comes off the conveyor elevator, it moves east along a 15-foot spur conveyor to a stacking mechanism where the crated machines are double-decked for easy handling to the awaiting boxcars.

Two-thousand-pound fork trucks, using a lip attachment devised by Maytag engineers, pick up the double-decked cartons and carry them into the boxcars spotted on the 750-foot spur line inside the plant.

When the machines are moved into the car by fork trucks, they are placed into position in one operation as carloaders jockey them into their respective places. At the time the cartons are loaded, the second portion of the four-section tag is removed and this part of the tag is used for billing and kept as a record of shipment of the Maytag machine.

Shipping crews can load 102 Maytag automatic washers in a 50-foot car, and 78 of the units in a 40-foot car.

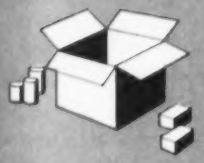
We have always used semi-floating loads, using wooden gates at each end of each half of the load with metal bands around each unit in each end of the car. Each unit was loaded flush against the end of the car which gave it an opportunity to float only in one direction—which was toward the middle. With this method of loading, we have had a great deal of success until the boxcar shortage caught up with us, which caused some cars to be furnished with rough floors. Such floors prevented the units from shifting, resulting in the bottom layer being held firm by obstructions on the floor, while the top units would float, causing some damage in transit.

We recently developed an anchor method of loading which prevents any shifting or floating, and this method has proved satisfactory and will be adopted as standard operation for our loading and banding.

We are certified under the National Safe Transit Program, and the complete testing equipment recommended by that program is employed in our testing laboratory. This pre-shipment testing has proved of great benefit in that it proves our design and method of packing is satisfactory to withstand the hazards of transportation and handling—*before* shipments are made. We use, of course, the National Safe Transit Label, and reports from the field indicate that this program of "Safe Transit" is most helpful.

finish

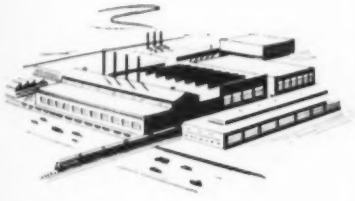
Gaylord Boxes



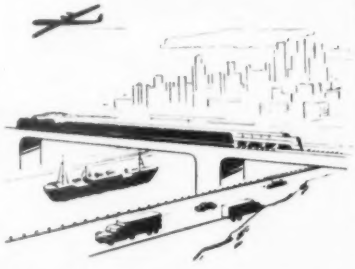
Give Protection

ALL THE WAY

from the factories through . . .

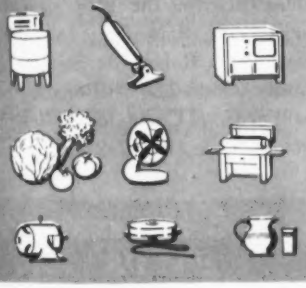


every step of transportation.

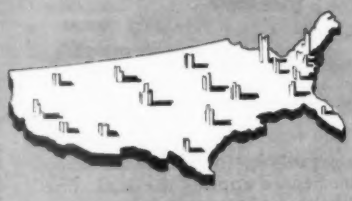


Gaylord Boxes

PROTECT the products



of the nation's largest producers



and have for **Years!**

GAYLORD CONTAINER CORPORATION

General Offices: SAINT LOUIS

CORRUGATED AND SOLID FIBRE BOXES • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS • FOLDING CARTONS

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Seattle
Indianapolis • Houston • Los Angeles • Oakland • Minneapolis • Detroit • Columbus • Cleveland
Fort Worth • Tampa • Cincinnati • Dallas • Des Moines • Oklahoma City • Greenville
Portland • San Antonio • Kansas City • St. Louis • Memphis • Bogalusa • Milwaukee
Chattanooga • Weslaco • Appleton • Hickory • Sumter • New Haven • Jackson
Greensboro • Miami • Mobile • Omaha • Philadelphia • Little Rock • Charlotte • Amarillo

Gaylord Boxes

ACTIVE TOOL & MFG. CERTIFIED BY SAFE TRANSIT COMMITTEE

The National Safe Transit Committee has announced the certification of Active Tool & Manufacturing Company, Detroit, bringing to 94 the number of manufacturers cooperating in the National Safe Transit Program.

Manufacturers desiring further information on the NTS program should write to the National Safe Transit Committee, 1010 Vermont Avenue, N. W., Washington 5, D. C.

GENERAL BOX K. C. PLANT HAS EXCELLENT SAFETY RECORD

Safety at work requires working at safety. That has been the experience of the Kansas City Division of General Box Company which has received four consecutive annual awards for safety from Liberty Mutual Company—a record that has been equalled by only one other firm in any industry.

The record for safety reflects credit jointly on workers, supervision and management, as it was a cooperative effort. In 1947 a committee consisting of members of all three groups was established to study the accident record and to see what could be done to improve it.

Consciousness of safety was never permitted to relax. Safety contests were held in regular succession. The major problem was the difficulty of keeping fresh promotion themes to hold employee interest. This was solved by enthusiastic work on the part of the safety committee.

Aside from the physical benefit of employees from the safety program, many other advantages have accrued to make the program show up well on the profit side of the business ledger. Perhaps one of the most significant advantages is reported by N. W. Embry, president of General Box, who says "The accident rate in our other 9 plants has been cut in half due to the fine work at Kansas City."

REED HEADS PACKAGING INSTITUTE 1952 FORUM

R. Chester Reed, The Texas Company, New York City, has been appointed chairman of the program committee for the 14th annual forum of the Packaging Institute, according to Robert de S. Couch, Institute president. The forum will be held at Hotel Commodore, New York, October 20, 21 and 22.

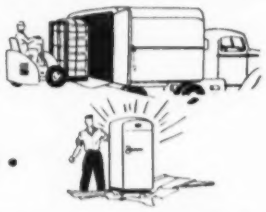
PROPOSES REVOLUTIONARY FREIGHT SHIPPING METHOD

Clifford E. Evanson, president of Technical Advisors, Builders and Engineers, Inc., Chicago, predicts that in the not-too-distant future long and continuous freight and express hauls will be handled on underground (and overland) conveyor systems.

"This is not the wild dream of an optimistic engineer," he pointed out "as tests have been made and are still in progress."

Evanson believes that within the next few decades a network of conveyor systems will connect major in-

FROM YOUR PLANT . . .



TO YOUR CUSTOMER . . .

A. J. GERRARD STRAPPING & TOOLS

PROTECT YOUR PRODUCT
PREVENT DAMAGE CLAIMS
PARE DOWN COSTS

FIBER-and-STEEL Strap

Protects Fine Finishes
Its soft Kraft paper outer layer won't scuff or damage the finest enamel finish. Inner layer of steel strap defies shipping shocks.

BULKBINDER Strap and Tools
Brace and Protect in Car, Truck or Ship

The Stretcher pulls ¾" or 1¼" wide strap taut, and the Sealer applies the seal. The Cutter quickly and easily severs new strap from reel, or excess strap after tightening. It also removes and salvages strap from incoming crates.

THE LOW COST LINE! . . . You buy all A. J. Gerrard strapping tools outright. No leases, no rentals, no added expenses.

THE COMPLETE LINE! . . . BULKBINDER line for heavy duty strapping.
STEELBINDER line for general strapping.

Consult your classified phone directory for your A. J. Gerrard dealer or write

STEEL STRAPPING

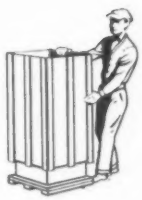
A. J. Gerrard & Co.

1958 Hawthorne Place • Melrose Park, Ill. (Chicago Suburb)

Finished Products ship better in a WATKINS CONTAINER

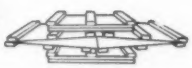
STACKING Vertical wood cleats provide exceptional supporting strength to carry heavy loads. Typical crate supports 4 tons.

QUICK Assembly line packing is speeded up. Easy to handle. *Complete* protection for your product.



STRONG All wood cleats securely glued to tube-mat. Laboratory tests prove glued cleats resist weave and distortion better.

STORING Containers are delivered flat (only 3 sections) and closely nested to conserve storage space.



A Watkins Container provides greater strength, lighter weight, *complete* product protection, reduced assembly time—and—the "Traveling Billboard" feature.

Scientific design affords strength out of proportion to container weight: strength to carry your product safely . . . strength for stacking to any practical height . . . strength to resist weaving and shock without distortion.

Light in weight, the Watkins Container is quickly and easily assembled to completely enclose your finished product, saving labor . . . saving time . . . saving expense. The container arrives at your plant 75% assembled.

You get *complete* product protection: protection from outside dirt and dust . . . protection inside for fine product finishes—smooth interior with no staples or rough surfaces to damage the product.

Add to these advantages the "Traveling Billboard" feature (advertising can be printed in two colors on four sides) and you will see why more and more manufacturers of appliances and other valuable finished products are shipping the "Watkins way".

THERE IS A WATKINS CONTAINER MADE NEAR YOU

These companies build WATKINS containers

CORNELL PAPERBOARD PRODUCTS CO.	1514 E. Thomas Ave., Milwaukee, Wis.
COZIER CONTAINER CORP.	446 East 131st Street, Cleveland, Ohio
CRATE-RITE MFG. CORP., Division of Pacific Ports Ind. Inc.,	10901 Russet Street, Oakland, California
DURA-CRATES, INC.	940 East Michigan Street, Indianapolis, Indiana
GENERAL BOX CO.,	500 N. Dearborn St., Chicago, Illinois, and 16th and Maple Sts., Louisville, Kentucky
HEMB & MARTIN MFG. CO.	Watseka, Illinois
ILLINOIS BOX & CRATE CO	811 Center Street, Plainfield, Illinois
KIECKHEFER BOX & LUMBER CO.	1715 West Canal Street, Milwaukee, Wisconsin
LANE CONTAINER CORP.	10212 Denton Road, Dallas, Texas
LEWISBURG CONTAINER CO.	243 Singer Street, Lewisburg, Ohio
LOVE MFG., INC.	608 South Commerce Street, Wichita, Kansas

—an inquiry to any of these companies will get prompt attention—

The · WATKINS CONTAINER · Manufacturers

dustrial and shipping centers across the United States. Such a plan would produce substantial cost reductions, cut the manpower now required, speed shipments, and free highways and railroads for short hauls and passenger traffic.

C. W. GAYLORD DIES; SPIEGEL NAMED HEAD OF GAYLORD FIRM

Clifford W. Gaylord, 68, president of Gaylord Container Corporation, St. Louis, died January 7.

Newly-elected president of the company is Edwin J. Spiegel, who had been vice president and treasurer of the company since it was formed in 1937. He will continue his duties as treasurer.

94 MANUFACTURERS CERTIFIED TO USE SAFE TRANSIT LABELS

The National Safe Transit Label is becoming more and more a symbol of Packaged Products that will withstand normal handling and in-transit practices.

A total of 94 manufacturers of home appliances and other metal products have been certified by the National Safe Transit Committee. The committee has certified these manufacturers to use the Safe Transit Label on all their products passing the pre-shipment testing procedures recommended by the NST Committee.

PRE-TESTED
SAFE TRANSIT
SHIPMENT
This PACKAGED PRODUCT meets the pre-testing standards established by the National Safe Transit Committee and will withstand ORDINARY transportation and handling hazards.
NATIONAL SAFE TRANSIT COMMITTEE
D. C.
MAKE
SAFE HANDLING
YOUR JOB

(Label's actual color — orange & black)

MATERIALS HANDLING GROUP ELECTS OFFICERS FOR 1952

At the annual meeting of The Material Handling Institute, held in mid-December at Hotel Statler, New York City, the following new officers were elected for 1952:

President—L. West Shea, manager, materials handling sales, The Union Metal Manufacturing Company, Canton, Ohio.

1st Vice Pres.—John C. Mevious, sales manager, materials handling and hydraulic division, American Engineering Company, Philadephia.

2nd Vice Pres.—Howard M. Palmer, general sales manager, Lewis-Shepard Products, Inc., Milwaukee.

R. Kennedy Hanson continues as the Institute's managing director, with offices in Washington, D.C.

CODE OF 17 POINTS FOR INDUSTRIAL TRUCK OPERATORS

J. L. Van Cara, driver-training expert, Automatic Transportation Company, has listed 17 points which he feels make an excellent basic code for industrial truck operators:

Keep the body inside running line of the truck.

No passengers should be permitted to ride on the trucks.

Keep to right of aisles whenever possible.

Slow down when vision is obstructed.

Stop at doors, corners, exits, etc., and sound horn.

Use horn when approaching pedestrians.

Start, stop, or turn gently, not suddenly.

Face in direction of travel always. Before backing up, look in direction you will go.

Carry only loads for which the truck is meant.

Keep loads below eye level, carrying them just clear of the floor.

Never drive high lift trucks with platform or forks elevated.

Bent or damaged loading plates should not be used.

Reverse controls are not a substitute for brakes.

Driving with wet or greasy hands is dangerous, because it may cause the operator to lose control of the wheel.

Slow down for wet or slippery floors.

Stunt driving and horseplay should be eliminated.

Trucks should be returned to the parking area at the end of each shift.

PRODUCTION, MERCHANDISING SUBJECTS TO BE DISCUSSED AT AMA PACKAGING, PACKING AND SHIPPING CONFERENCE

Production and merchandising subjects will receive major emphasis at the 21st annual Conference on Packaging, Packing and Shipping, held concurrently with the National Packaging Exposition, it has been announced by the American Management Association. The conference will be presented from April 1 to 3, with the exposition remaining open for a fourth day, April 4. Both events will be held in the Public Auditorium, Atlantic City, N. J.

One of the features of the exposition and conference will be a graphic presentation of the packaging policies and procedures of General Motors Corp., for which an entire half day will be reserved.

The GM presentation will feature an exhibit of representative products presented in their actual unit packages and shipping containers. The grouping will range from consumer or industrial items in which packaging played important merchandising roles, to products for which the primary considerations were protection and maximum handling efficiency.

Also scheduled will be a presentation by executives and technicians from a selective group of General Motors divisions, giving their organization's packaging techniques and their use of packaging equipment. Such elements as the following will be covered in their talks: description of methods and procedures, merchandising factors, design procedures, reason for specific materials employed, cost considerations, test background and materials handling factors.

The opening session of the confer-

finish

ence Tuesday morning, April 1, will present two papers, one having to do with a critical examination of the prospective supply situation with reference to materials and equipment, the other concerned with long-range trends in the field of packaging.

Two concurrent sessions will be held on Tuesday afternoon. One, a merchandising session, will consist of three papers, on packaging for self-service, consumer testing of packages, and retailer critiques of current packaging. The second concurrent session will be designed essentially for production executives, and will cover such subjects as the establishment of standards for purchasing packaging supplies, and quality control.

Wednesday sessions will be devoted to the General Motor's presentation and to a comprehensive examination of programs for reducing packaging costs. Tentative conference plans call for three case stories to be presented, on an integrated basis.

The final session of the conference will be held on Thursday morning, April 3. Papers will be concerned preponderantly with materials handling subjects and the relationship of materials handling to the functions of packaging and packing, as well as an authoritative paper on procedures for cost determination in the packaging operation.

The Packaging Exposition, held concurrently with the conference, will be the largest in the 21-year history of the event. Some 300 companies will utilize more than 100,000 square feet of space to present the machines, equipment, materials and services for packaging, packing and materials handling of both consumer and industrial products. Close to 20,000 are expected to attend the exposition.

SET NEW PRODUCTION RECORDS AT AMERICAN BOX

Rated as the most important development in years for wood-cleated "panel" boxes is the high-speed production of what is reported to be the fastest machine of its kind in existence, recently perfected and now setting new records, at The American Box Co., Cleveland, Ohio.

According to Henry S. Kubes, vice

Signode equipment boosts output of strapped packages 190 a day!

An eastern manufacturer, using Signode equipment, was turning out 560 packages every day. He was 100% satisfied. But the Signode field man in that territory wasn't. He was sure that he could step up the output of packages and reduce unit packaging costs with Signode's new Power Strapping Machine.

The Signode Power Strapping Machine was put in the production line. The number of packages strapped for shipment jumped from 560 to 750 —190 more per day! Unit cost dropped. Yet, compared to many other Power Strapping Machine installations, this is not a particularly fast operation. In the flooring industry, for example, these machines apply up to 750 straps per hour.

Would you like to talk over your packaging and shipping needs with a Signode field man? No business is too small or too large— no operation too complex. Write

SIGNODE
STEEL STRAPPING COMPANY
2639 N. Western Avenue Chicago 47, Illinois
Offices coast to coast:
In Canada: Canadian Steel Strapping Company Ltd.
Foreign Subsidiaries and Distributors world-wide.

this seal SIGNODE means security in shipping

president and general manager of the box firm, the new equipment is producing wood-cleated fibreboard "panel" boxes for rush defense contracts at double the speed of conventional machines.

Corrugated paper or fibreboard sheets and wooden cleats fed into the unit at one end are stapled together into "panels" and flow in a continuous stream from the other end. The entire operation is completed in a matter of seconds.

In addition to speed, Kubes claims the machinery saves innumerable manhours, with resulting production economy.

WIREBOUND BOX ASSOC. NAMES NEW PUBLIC RELATIONS MAN

The Wirebound Box Manufacturers Association recently announced the appointment of G. Cornwall Spencer, 221 North LaSalle Street, Chicago, to direct and conduct public relations and publicity on behalf of the wirebound shipping container industry.

The 1952 business outlook for gas appliances

(Continued from Page 33)

The answer to this question takes on added meaning to those companies without defense contracts. It has a real meaning to all manufacturers because they depend on government allotments of CMP metals. Such allocations will exert the strongest limiting influence over production during 1952.

As has been our practice, this survey has been broken down, as far as possible, to show the thinking of each product division of the gas appliance industry. Separate tables are shown for: (1) automatic water heaters, (2) domestic ranges, (3) central heating equipment—boilers, furnaces, conversion burners, (4) direct heating equipment, (5) unit heaters, (6) floor furnaces, and (7) hotel and restaurant equipment.

Facilities Devoted to Defense Work

	Converted companies, per cent of facilities reported converted	Total industry, per cent of facilities reported converted
Automatic gas water heaters	28%	19%
Domestic gas ranges	30%	19%
Central gas heating equipment	43%	30%
Direct gas heating equipment	31%	21%
Gas floor furnaces	26%	20%
Gas unit heaters	49%	11%
Hotel & restaurant equipment	26%	19%
TOTAL	30%*	19%*

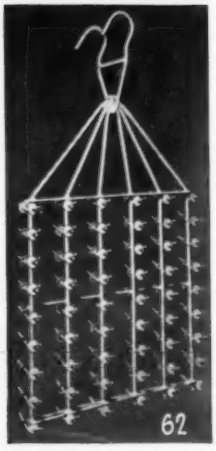
*Includes gas incinerators, clothes dryers, LP brooders. Does not include controls, valves, thermostats, etc., which is about 25% converted.

Reports were also received from manufacturers of gas-fired incinerators, clothes dryers, poultry brooders, valves and controls. These, however, were not received in sufficient

It's MISCO for HEAT RESISTING ALLOYS IN ROLLED MILL FORMS

Sheets — Plates — Rounds ● Squares ■ Hexagons ● Flats — Angles L Channels U Sections ⌐ Pipe ○ Nuts ⬡ Welding Rod

MAKE Your Enameling fixtures with MISCO METAL (35-15) there is no finer Heat Resisting Alloy



STRONGER • ECONOMICAL • SCALE RESISTANT

ROLLED PRODUCTS DIVISION
Michigan Steel Casting Company
1999 GUOIN ST. • DETROIT 7, MICH.
MISCO
One of the World's Pioneer Producers and Distributors of Heat and Corrosion Resisting Alloys

Guaranteed Results in the Pickle Room with Specification Materials and Experienced Service

MANUFACTURERS OF LEPCO PRODUCTS

Suppliers to Porcelain Enameling Plants
CLEANERS • NEUTRALIZERS
DRAWING COMPOUNDS

V. B. PUNDERSON COMPANY
402 SWETLAND BUILDING CLEVELAND 15, OHIO

"Break-Even" Point Compared with "Expected" Civilian Production
(considering *no* defense contracts)

	Break-even point*	Volume of 1952 gas appliance and equipment business compared with 1951
Automatic water heaters	81.4%	—19%
Domestic ranges	83.7%	—24%
Central heating equipment	92.2%	+ 3%
Direct heating equipment	78.8%	same
Floor furnaces	79.2%	— 5%
Unit heaters	83.3%	—22%
Hotel & restaurant equipment	86.9%	—12%

Controls, valves, thermostats, regulators, etc., manufacturers indicated a "break-even" point of 67% of 1951 activity.
*Per cent of 1951 activity.

quantity to permit the showing of individual tables. Wherever possible, we shall record the composite thinking of these manufacturers.

In regard to advertising and promotional activities most companies contemplate *no change* in these activities. Manufacturers of controls, valves, thermostats, regulators, etc. concur.

Defense contracts in 1952

Looking toward defensework in 1952, it appears that much the same situation exists today as in 1951 with gas appliance manufacturers. Namely, the larger companies with more diversified production facilities are absorbing the defense work. Generally speaking, the smaller manufacturers do not have defense contracts, or assurance of such contracts.... The bulk of manufacturers reporting gas and hotel and restaurant equipment do have defense work or assurance of it. Practically all reporting manufacturers of controls, valves, thermostats, etc., either have, or are assured of, defense contracts.

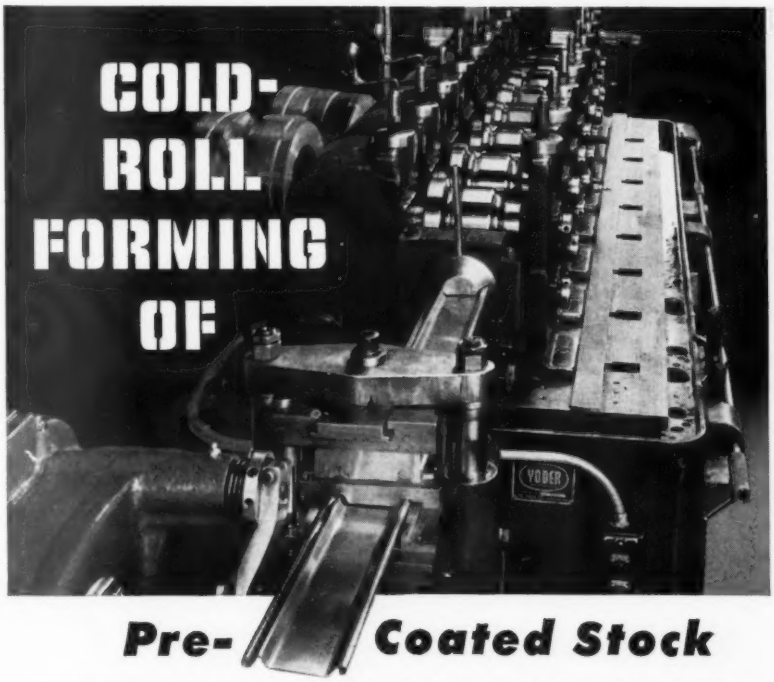
"Break-even" point

The "break-even" point was defined as "using 1951 production of gas appliances and equipment as 100%, and assuming no serious cuts in the average 1951 employment during 1952, what is the minimum percentage of 1951 production of gas appliances and equipment which will permit you to operate 'out of the red'?" The question also asked manufacturers to assume that production would be devoted strictly to gas appliances, or equipment, without defense contracts.

The answers are both interesting and significant, particularly compared with the expected volume of business during 1952.

If a manufacturer of domestic gas ranges figures his "break-even" point to be 83.7% of his 1951 activity, and that his volume of 1952 business would be 24% below 1951 levels (consensus of industry in table), he could anticipate difficulties. The reason: He would expect to do 76% of last year's business, and the indications are that he would operate in the red unless he was assured at least 83.7% of his 1951 business. (This assumes he had no defense work and that his sole income is from gas appliance production.)

The question which each manufacturer must ask himself is: "Without defense work (and it appears that many of the smaller manufacturers are in that category), will CMP allotments permit me to manufacture at



Pre-Coated Stock

When roll forming is not to be followed by other operations which may damage fine finishes, it is common practice to use stock which has already been given the finish ultimately desired. Because, with proper design, roll pressures can be held extremely low, and the further fact that the metal is not heated, the process permits a wide freedom of choice in decorative and protective finishes.

Large quantities of hot dipped galvanized stock are being cold-roll formed. Electro galvanizing and plating with chromium, brass and copper most easily meet roll-forming requirements. So also metal which has been polished, burnished, buffed or similarly treated.

Roll-forming of stock which has been painted or given other organic coatings, is also practical. Better coatings are constantly being developed for this purpose.

Thickness of stock, design of profiles, kind of coating desired, and number of roll passes, are the principal factors to be taken into account.

The services of Yoder engineers are at your disposal in finding the best answer to problems of this kind. Yoder Book on Cold-Roll-Forming is yours for the asking.

THE YODER COMPANY • 5559 Walworth Ave., Cleveland 2, Ohio

Complete Production Lines

- ★ COLD-ROLL-FORMING and auxiliary machinery
- ★ GANG SLITTING LINES for Coils and Sheets
- ★ PIPE and TUBE MILLS—cold forming and welding

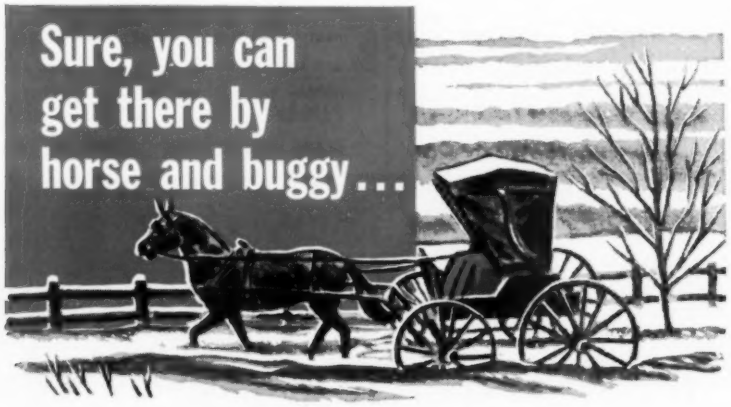
ENGINEERING YODER MANUFACTURING

a level high enough to break even?"

The foregoing example is hypothetical. Nevertheless, it is food for thought as it is indicative of a dangerous situation which can further disrupt our national economy by bringing many manufacturers to a financial danger point.

Assuming no change in the national economic picture, many manufacturers must either have assurance of more materials for production, be given assurance of defense contracts, or sub-contracts, or adjust their physical setup to prevent loss.

In closing, 1952 shapes up as a year of uncertainties. Many economists, who in the past have accurately forecast business volume and conditions, are playing ostrich. As an industry, *we have our troubles, but all can be solved*. We continue in the position of making all-out contributions to the defense program, and at the same time performing an essential service to the civilian economy.



Just as you can get by with old-fashioned methods in your finishing department...

RANSBURG ELECTRO-COATING CORP. offers the world's most modern . . . most efficient . . . best-engineered . . . spray finishing system.

Want to know what the Ransburg electrostatic spray process can do for you? Write for our brochure describing the RANSBURG NO. 2 PROCESS. You'll be interested in the case histories of installations where heretofore - unheard - of - efficiencies are being obtained consistently by users of RANSBURG spray finishing equipment.

Electrostatic Painting Processes

RANSBURG ELECTRO-COATING CORP.

Indianapolis 7, Indiana

RANSBURG

The 1952 electrical products outlook

→ *from Page 32*

ity and capacity to meet whatever production demands are placed upon it, but rather questions as to whether the soft spots in the production picture for electrical goods during 1952 will be overcome by the placement of new defense orders.

In other words, the industry is concerned about questions as to whether those in government responsible for determining the pattern of business will be realistic and prompt enough in their planning to utilize the machines, trained manpower, and expert management available in the industry with a minimum amount of disruption of industrial activity.

If such questions are answered satisfactorily, the industry will not only make an important contribution to the Defense-non-defense Program, but, more important, will contribute substantially to high level employment and high level earnings, both of which are an absolute necessity to the financing of that Defense-non-defense Program.

Mass production of lighting fixtures

→ *from Page 35*

Sylvania "Miracoat" method are also available over the entire line. All units will feature the customary gray and white color combinations or all white finishes for use in dairies, laboratories, etc., if desired.

To afford the greatest possible flexibility of lighting layout the new line will be available in 2′, 4′, 5½′, 8′, and 11′ lengths. A choice of single pin instant start or bipin lamps standard start, conventional or turret type lampholders offer a wide selection for the individual requirement.

Many optional variations, such as slotted reflectors for indirect ceiling illumination, longitudinal baffles, 30° x 30° louver shielding, and glass or plastic diffusing covers for the closed end reflector types will also be available.

The new fixture line will be fabricated at the new Sylvania metal stamping plant located in Wheeling,

West Virginia, where the most modern equipment for fabricating and processing metal components has been installed. All metal parts of this new series of lighting fixtures are to be treated by phosphatising before painting and enameling which assures better adhesion of the finish, as well as excellent resistance to rust and deterioration due to moisture and high humidity, therefore assuring longer and more satisfactory fixture life.

NEWS → *from Page 61*

eering department, and Milton T. Schimmel as engineering sales manager.

The company manufactures spray painting masking shields, tools and fixtures; mask washing machines; and automatic air-operated, hydraulically-controlled machinery for spray painting small parts on a mass-production basis.

PENNSALT APPOINTS MACON ORDNANCE SPECIALIST

J. Ralph Macon has been appointed Pennsylvania Salt Manufacturing Company's sales and service specialist in the ordnance field, it recently was announced by Joseph J. Duffy, Jr., sales manager of the phosphate coatings and industrial cleaners department.

Macon joined Pennsalt in 1950 as an engineer in the market research division, transferring to sales when the company began marketing phosphate coatings and lubricants for application to steel prior to cold working.

DETREX SOLVENT EQUIPMENT SALES AT HIGH PEAK

The increase in the rate of solvent degreasing equipment sales for 1951 was four times that of 1947, according to figures released by Detrex Corporation, Detroit, one of the leading manufacturers of chemicals and equipment for industrial production cleaning.

A company spokesman said that the rapid increase in the adoption of degreasing as a metal cleaning process by both civilian and defense industries is due in part to the speed of degreasing in forming, fabrication and finishing operations.

HERCULES POWDER APPTS.

The appointments of three men to key executive positions in Hercules Powder Company's synthetics department were announced as follows: Henry A. Thouron to a newly-created position of assistant general manager; James W. L. Monkman as director of sales to succeed Thouron; and Paul L. Johnstone as director of development, also a newly-created position.

CORDES TO METALLOY STAFF

John E. Cordes, ceramic engineer, has been appointed to the staff of Lithium Corporation of America, Inc., Metalloy Corporation Division, Minneapolis. A graduate of the University of Illinois, he received his B.S. in Ceramic Engineering in 1939.

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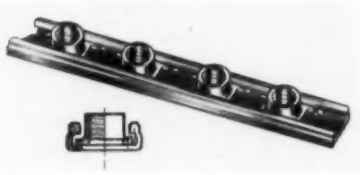
*Fiberglas is the trade mark (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with fibers of glass.

New Supplies and Equipment

B-21. Compact gang channel



A new multiple lock-nut fastener is compact designed so as to make its application interchangeable with the standard type of anchor nut. Containing spring steel lightweight lock-nuts as inserts, this multiple nut fastener is narrower, lower, lighter and stronger than any similar product ever produced, it is stated.

B-22. New cold spray bonding solution for product finishes

A new cold spray bonding solution which can be applied with ordinary spray equipment has been announced. The solution is said to eliminate preparatory steps such as cleaning, rinsing, drying, etc. It is sprayed on the product where it dries immediately, ready for application of the final finish. It is recommended by the producer for all metals except aluminum. The solution can be cut as high as three parts thinner to one part base material. The announcement states that the material has been thoroughly tested to government test specifications, withstanding conditions of humidity, salt spray, etc., while furnishing the bond for a coating of paint 150 mm thick.

More Information

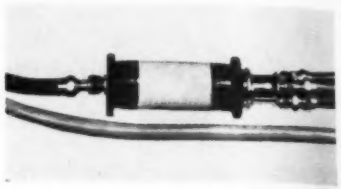
For more information on new supplies, equipment and literature reviewed here, fill out the order form on page 87, or write to us on your company stationery.

B-23. Metal stitching speeds assembly operations 30 per cent

By replacing drilling and riveting with metal stitching, Tomfohr Overhead Door Company of Portland, Ore., has increased its production of aluminum door assemblies more than 30%. In addition, fastener costs have been lowered approximately 75% and labor charges reduced more than 65%.

Formerly, two men were required for drilling and riveting operations. Working together, they assembled one door every 55 min., or nine doors per 8-hr. shift. With metal stitching, one man is now able to complete a door every 45-min., or 12 doors per 8-hr. shift.

B-24. New lightweight temperature control unit for hot spray systems



This extremely small temperature control unit is installed in the fluid line and heats the paint on its way to the spray gun. It may be mounted or held in one hand leaving the other hand free for the spraying operation. Asbestos insulation protects the operator's hand.

This unit for hot spray finishing systems uses standard spray gun.

B-25. Packaging machines for volume bundling and taping

Two new packaging machines, designed for automatic volume bundling and reinforcing with tape, have been announced.

Both machines were developed for "faster and more economical" heavy-duty packaging jobs, according to the producer.

One model (nicknamed "girth wrapper"), is able to apply one or two complete wraps of pressure-sensitive filament tape around cartons, bundles of cartons, and other similar items at the rate of five bundles or cartons per minute.

It does the job by automatically starting the tape on the carton, wrapping it as desired, and cutting it at completion of the wrap. A single operator controls the machine.

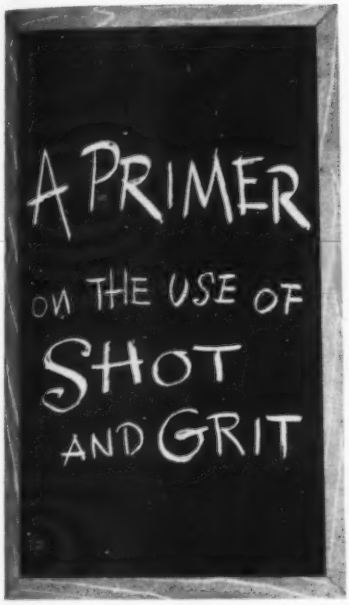
Weighing approximately 1,500 pounds and requiring an operating area 4-feet wide by 7-feet long by 9-feet high, this model is able to handle bundles within limits of 4- to 20-inches in both height and width, and a minimum length of 6-inches.

The other model, on the other hand, is for mass production bundling jobs—automatically loading, ap-

plying tape, and unloading a bundle as often as every 20 seconds. It is particularly suited for bundling metal stock, pipe, conduit, tubing, lumber, and other elongated materials, the firm explained.

Industrial literature

201. A primer on the use of shot and grit



The claims and counterclaims about the use of shot and grit have created a mild state of confusion.

The purpose of this new booklet is to examine the serious problems of blast cleaning operations with a view to helping clarify the thinking on the subject.

The information in this booklet will serve as a guide in examining your own problems and will help establish a yardstick against which to measure any metal abrasive on the market.

---

202. Manual lists 1500 distinct uses for industrial tapes

The "Polyken Standard Industrial Classification Manual" cites some 1500 applications for industrial tape.

Nearly 80 pages in length, it contains 21 major group classifications (based on the U.S. Census breakdown), 175 detailed industry classifications, and approximately 1500 distinct and specific uses for industrial tape.

This handbook constitutes at present a basic guide to industrial tape usage, and frequent additions by the publishers are planned to enlarge it and keep it up to date.

Some of the applications described include bundling, tube sealing, thread protection, aperture sealing, coil bundling or tieing, edging, protection of finished surfaces during assembly and shipment, taping on inside curves and radii, taping two sides of an angle, taping out stresses, taping around corners, holding doors and drawers, coil winding, thermal insulation, etc.

---

203. New catalog describes cloth-type dust collectors

A new 36-page catalog, "Dust and Fume Control," describes the various sizes and models of cloth-tube type dust collectors and the advantages to be gained from cloth filtration.

Standard assembled and knocked-down models of this equipment have a range of air flow capacities upward from 252 cfm and filter the air through various kinds of cloth — cotton, wool, and synthetics — depending upon the application. Continuous automatic collectors are provided where requirements are such that service must not be interrupted for shaking the filters to release accumulated dust. The description of each type of collector is accompanied by complete specifications, construction drawings, cut-away views, and illustrations of typical installations.

---

204. Free 20-page booklet on in-line hot spray system

A two-color 20-page booklet describes in detail the application of a simplified "hot spray" system for applying lacquer and enamel finishes to appliances and many other metal products. The system employs a simplified miniature "heater" in the fluid line at the point of application.

Write for free booklet on company letterhead.

---

205. Soldering equipment brochure

Just published is an 8-page brochure, "Mogul Soldering & Brazing Equipment." Fully illustrated booklet describes the unique new "Mogul Soldering Gun" and shows applications of its use to production-line soldering and brazing.

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206. Bulletin on evaporative cooler for quench oil cooling

Systems which metalworking plants can use to increase quality and quantity production in heat treating are outlined in a new bulletin on evaporative cooling of quench oils, published by a manufacturer of air conditioning, heating and ventilating equipment.

The bulletin tells how cooling and circulation of quench oils assures scientific control and saves time by continuous operation, in addition to reducing oil losses and fire hazards.

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Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No.____ **No.**____ **No.**____ **No.**____

No.____ **No.**____ **No.**____ **No.**____

Name ____ **Title** ____

Company ____

Company Address ____

City ____ **Zone**____ **State** ____

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FIBERGLAS ANNOUNCES SALES REASSIGNMENTS

Designation of a sales manager for its general products division and major rearrangement of assignments of two vice presidents have been announced by Harold Boeschenstein, president, Owens-Corning Fiberglas Corp.

Ben S. Wright, vice president since 1949 and general sales manager since 1947, was reassigned as vice president in charge of purchasing and trade relations; E. W. "Pat" Smith, appointed vice president and director of merchandising last May, was reassigned as vice president in charge of sales branches and training programs; Edward J. Detgen was named sales manager of the general products division. All will make their headquarters in the Owens-Corning general offices in Toledo.

INLAND STEEL ANNOUNCES SALES PROMOTIONS

Inland Steel Company has announced a series of sales organization promotions.

Anthony M. Ryerson was named general manager of sales, filling the vacancy created by the election of John F. Smith as vice president in charge of sales.

Benton J. Willner and Clarence L. Holmberg were made assistant general manager of sales.

Kenneth J. Burns succeeds Willner as sheet and strip sales manager, and Robert M. Buddington moves up to Burns' former position as manager of the Chicago district sales office.